

DOCUMENT RESUME

ED 178 073

IE 007 816

AUTHOR Conner, Pat A.
 TITLE A Study of Alternative Delivery Systems for Audio Instruction.
 INSTITUTION Newark Public Radio, N.J.
 SPONS AGENCY Corporation for Public Broadcasting, Washington, D.C.
 PUB DATE Sep 77
 NOTE 219p.; Parts of appendix may be marginally legible
 EDRS PRICE MF01/PC09 Plus Postage.
 DESCRIPTORS Audio Equipment; *Cost Effectiveness; *Delivery Systems; *Educational Radio; Elementary Education; *Instructional Programs; *Magnetic Tape Cassette Recorders; Program Development

ABSTRACT

The Newark Audio Instruction Project determined and evaluated the cost benefits and efficiency factors in using FM main channel and subchannel, the school intercom system, and audio cassettes for delivery of instructional programming for grades K-9, and developed a master plan for integrating radio/audio instruction into the curriculum. A preproject assessment, administered to a sample of 570 teachers in schools selected by the radio supervisor and the executive superintendent of schools, revealed that teachers were using main channel radio as the primary delivery system significantly more than cassette or intercom. In a post project assessment questionnaire administered after three months of involvement, attitudes towards the various delivery systems, levels of utilization, and modes of utilization, were evaluated. It was found that cassettes received the highest rating from teachers in terms of flexibility, efficiency, individualization, student reaction, ease of use and storage, and satisfaction on the part of the teacher. Questionnaire forms and tabulated results are included. Appendices include the original project proposal and related information about implementation, including equipment evaluation.
 (JEG)

 * Reproductions supplied by EDRS are the best that can be made *
 * from the original document. *

ED178073

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

A STUDY OF ALTERNATIVE DELIVERY SYSTEMS
FOR AUDIO INSTRUCTION

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

George Stein

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

PREPARED BY:

Pat A. Conner
Consultant
Newark Public Radio, Inc.
September, 1977

IR007816

ACKNOWLEDGEMENTS

The direction of Robert G. Ottenhoff, Project Director, must be noted as an essential ingredient to the success of this project. He served as troubleshooter and willing adviser to project staff, participants, and consultants. The invaluable services of Jesse Thomas, Audio Instruction Specialist are also to be commended. Mr. Thomas provided that accessibility and immediacy so vital to experimental projects in the school setting. His efficiency and promptness in duplication and delivery of cassettes were highly professional. Jerry Simons, Director of Audio-Visual Services, is also lauded for his cooperation during the project.

Others who contributed assistance and guidance to this project include Richard Roper, Director, Office of Newark Studies and the Staff of WBGO Radio. Special thanks must also be given to Stanley Taylor, Executive Superintendent of the Newark Public Schools and its teachers and principals as well as the Newark Board of Education which supported this project so enthusiastically.

TABLE OF CONTENTS

Abstract

- I. Objectives of the Study
 - A. Statement of the Problem
 - B. Statement of the Hypotheses
- II. Review of Available Literature or Relevant Studies
- III. Scope and Limitations of the Study
- IV. Pre-Project Methodology
 - A. Instrument
 - B. Data Collection
- V. Project Implementation
 - A. Project Participation Selection
 - B. Project Seminars
 - C. Equipment Distribution
 - D. Programming Options
 - E. Cassette Duplication and Distribution
- VI. Post-Project Methodology
 - A. Instruments
 - B. Data Collection
- VII. Presentation of Data
 - A. Pre-Project
 - 1. Sample
 - 2. Sub-Sample
 - B. Post-Project
 - 1. Teachers
 - 2. Principals
 - C. Interviews with a Sample of Project Participants
- VIII. Analysis of Data
 - A. Pre-Project
 - 1. Sample
 - 2. Sub-Sample
 - B. Post-Project
 - 1. Teachers
 - 2. Principals

IX. Conclusions

X. Recommendations

XI. Suggestions for Future Research

* * * * *

Appendix A - A Proposal to Study Alternative Delivery Systems for Instructional Audio Programming by Robert G. Ottenhoff.

Appendix B - Press Coverage of Newark Public Schools During Project.

Appendix C - Letter from Executive Superintendent to Pre-Project Participants and Principals.

Appendix D - Pre-Project Commentaries by Teachers.

Appendix E - Letter from Executive Superintendent to Principals and Letter from Jerry Simons to Project Participants.

Appendix F - Post-Project Assessment Commentaries.

Appendix G - Description of Responsibilities of Audio Instruction Specialist.

Appendix H - Engineering Reports.

Appendix I - Description of Project Equipment.

Abstract

The Newark Audio Instruction Project represents an experiment designed to determine and evaluate the cost benefits and utilization and efficiency factors in using FM main channel, the FM subchannel, the school intercom system and audio cassettes for delivery of instructional programming for grades K-9, and to develop a master plan for integrating radio/audio instruction into the curriculum program of the Newark Public Schools. The experimental data and related literature in this field are generally dated and, in the case of subchannel distribution, non-existent.

A Study of Alternative Delivery Systems for Audio Instruction reflects an evaluation of the results of the Newark Audio Instruction Project and addresses the following questions:

1. To what extent does a delivery system for audio instruction influence the level and quality of utilization?
2. What are the cost benefits in the various delivery systems for audio instruction?
3. What are the critical variables in teacher utilization of audio instruction?
4. What steps should be taken for the integration of audio instruction into the curriculum of the Newark Public Schools?

To initiate a study of delivery systems, it was necessary to ascertain current levels, modes, and attitudes of teachers for audio instruction. A pre-project assessment was administered to a sample of 570 teachers in schools selected by the WBGO Radio Supervisor and the Executive Superintendent of the Newark Public Schools. The results revealed that teachers were using main

channel radio as the primary delivery system significantly more than cassette or intercom.

A random sample of the selected group of sixty was selected by the consultant and the Project Director to participate in the actual project, with half of the sample representing experienced utilizors of audio instruction via WBGO and the remaining half representing inexperienced utilizors who had never utilized WBGO or had upon rare occasion utilized WBGO's instructional radio services. The sixty project participants were invited by the Coordinator of Audio-Visual Services to attend an introductory seminar. Principals of the project schools received a letter of endorsement for the project from the Executive Superintendent.

Each participant was assigned a one-channel radio, half of which were tuned to WBGO's main channel and the remainder of which were tuned to WBGO's sub-channel; each teacher was also provided a cassette playback machine. A seminar was presented for project participants in which the purposes of the project were outlined, the programming options were reviewed, the process for ordering cassette copies of programs was demonstrated, and guidelines for optimum utilization of audio instruction were presented. During the project an Audio Instruction Specialist provided the essential link between project staff and project teachers, answering questions, providing cassettes, and in general facilitating the project in every way.

LIMITATIONS:

A number of conditions existed during the course of this study which hampered project staff and, in some cases, project participants. They are enumerated in Part III of this report which addresses itself to "Scope and Limitations." The limitations may be briefly described as follows:

1. Methodological (time frame for the project; late retainer of evaluative consultant and resulting lack of involvement in project design; incomplete responses on questionnaires, sample contamination; lack of project's control over scheduling, programming, and transmission).
2. Engineering (delays experienced in delivery and installation of SCA equipment).
3. School Environment (Board of Education enactment of teacher transfers, lay-offs, and budget cuts; deep philosophical differences between the Board of Education and the Executive Superintendent which ultimately led to the Board's demand for the Superintendent's resignation).

A Post-Project Assessment Questionnaire was administered to all project participants after three months of involvement. The apparatus assessed attitudes towards the various delivery systems, levels of utilization, and modes of utilization (i.e. group listening, individualized listening, and listening as supplemental to the curriculum, as enrichment, or as the only source of information.)

MAJOR FINDINGS:

I. Hardware

- A. Provided with radio receivers and cassette machines, 53% (43/82) of the project participants chose cassette use.
- B. Cassettes received the highest rating from teachers in terms of flexibility, efficiency, individualization, student reaction, ease of use and storage, and satisfaction on the part of the teacher.
- C. Project teachers attested to the utility of the cassette in terms of scheduling flexibility and its capacity for teacher control over rate of delivery.
- D. Teachers utilizing radio, whether main channel or subchannel, endorsed its ability to evoke favorable student reaction as well as its ease of use and storage.
- E. Given adequate engineering guidance and support, SCA delivers acceptable audio instruction of a quality indiscernible from main channel transmissions.

- F. The intercom was utilized by a number of respondents not judged to be significant, however, intercom utilizers were very negative in their evaluations of this delivery system.

II. Utilization

- A. The integration of audio instruction into the curriculum was more evident with the use of cassettes.
- B. Utilization frequency increases with the use of cassettes.
- C. The "start-stop" mode of use was popular with proponents of cassettes, whereby teachers could answer questions, clear up confusion, underscore concepts, and repeat segments when necessary.
- D. Given multiple delivery systems, utilization guidance, immediacy of cassette delivery, and accessibility to equipment, the level and quality of utilization of audio instruction increase.
- E. Utilizers and non-utilizers in the pre-project assessment agreed that "schedule convenience" was the largest single hindrance to utilization of WBGQ's instructional services.
- F. 74% (29/39) of project teachers implemented activities to prepare students for audio instruction lessons.
- G. 81% (30/37) of project teachers implemented activities to follow-up audio instruction lessons.
- H. 36% (27/74) of project participants utilized audio instruction on an individualized or small group basis with listening stations as opposed to 18% (55/309) of the pre-project participants.
- I. When queried as to what type pupil best responded to audio instruction, 27% (21/78) chose the average achiever in academic ability, 18% (14/78) chose the underachiever, 15% (12/78) chose the above-average in academic ability, and 14% (11/78) responded that pupil capability was not a factor.
- J. 100% of the project participants reported that they would utilize audio instruction next year based upon their experiences in the project.
- K. Teachers reported high student interest in audio instruction.
- L. The development of listening skills proved to be the predominant advantage that teachers saw in using audio instruction.

- M. In both the pre-project and post-project assessment, teachers overwhelmingly described their use of audio instruction as "supplemental" wherein programs were directly related to classroom study.

Retrieval rates for the assessment questionnaires were as follows:

Pre-Project	70%
Post-Project (teachers)	88%
Post-Project (principals)	79%

I. OBJECTIVES OF THE STUDY

A. Statement of the Problem

The Newark Audio Instruction Project represented an experiment designed to generate accurate information and useful experiences on a range of delivery systems for audio instruction for elementary and middle schools. The project was designed to provide information in answer to the following questions:

1. To what extent does a delivery system for audio instruction influence the level and quality of utilization?
2. What are the cost benefits in the various delivery systems for audio instruction?
3. What are the critical variables in teacher utilization of audio instruction?
4. What steps should be taken for the integration of audio instruction into the curriculum of the Newark Public Schools?

B. Statement of the Hypotheses

1. The level of utilization of audio instruction, in both frequency and quality, will increase when the following conditions exist:
 - a. Equipment is readily available.
 - b. Training in utilization is presented to teachers.
 - c. Information regarding program offerings is made available.
 - d. A communications link is well established between the audio instruction center and the teacher.
 - e. Multiple delivery systems are available.
 - f. Audio instruction is available to the teacher in an unscheduled manner, thereby fulfilling the need for flexibility in the classroom schedule.
 - g. Sound quality is suitable.

2. The frequency of utilization of cassettes will be higher than that of radio in the classroom setting.
3. The quality of utilization in terms of preparatory and follow-up activities will improve given flexibility in delivery of audio instruction.
4. Given adequate engineering guidance and support, SCA delivers acceptable audio instruction of a quality indiscernible from main channel transmissions.
5. The addition of cassettes as a delivery system for audio instruction will improve the cost effectiveness for a radio broadcast entity due to increased frequency of use and a broadened base of educational audiences which can be reached.

II. REVIEW OF AVAILABLE LITERATURE OF RELATED STUDIES

The literature regarding audio instruction is generally dated and most of it deals with its effectiveness as compared to other modes of instruction. For the purposes of this study, literature regarding the study of delivery systems for audio instruction is necessary. Such material is severely limited, none existing for direct classroom instruction with students.

One piece of literature does exist, however, dealing with SCA presentation of in-service programs related to the teaching of elementary reading skills for teachers in Missouri. The 1975 study was implemented by the Continuing Professional Education Department of the College of Education, University of Missouri at Columbia through three FM radio stations.

The development of the programs and the selection of broadcast times were based on the constraints normally placed upon elementary teachers. Each 15-minute program was broadcast over SCA four times over a two day period with new programs introduced each Monday and Thursday. Participating schools in 29 school districts received twenty programs on reading education. Supplementary materials and services were distributed thereby allowing four options for program parti-

cipation. Those options were as follows:

OPTION A	OPTION B	OPTION C	OPTION D
SCA Programs	SCA Programs + Written Materials	SCA Programs + Phone Visits	SCA Programs + Personal Visits

Teachers were encouraged to participate on a voluntary basis with the incentive of 0.5 continuing education units given to those completing the project. Opinion surveys were administered to teachers and administrators related to reading education as well as the technical aspects of the delivery system.

The results of the study indicated a generally wide acceptance of the program effort. The results of the pre and post testing of 350 teachers were statistically significant, but revealed increases on an average of less than one point. Conditions for receiving the programs were of a very informal nature and little stress was placed on formal academic achievement; therefore this result was not unexpected. The percentage of favorable responses was consistently over the 75% level. Requests for additional programs of a similar nature were received from numerous respondents. The effort indicated the basic usefulness of SCA as a potential approach to inservice education for practicing teachers. Minor technical problems were encountered in the early stages of the study, but were corrected. Stressed as an important aspect of the project was the development of lines of communication and cooperation between the radio stations and the staff on the separate University campus.

West Virginia Wesleyan College is currently working under an HEW grant to research the use of SCA in college credit courses. Working through WWC, courses are aimed to non-traditional students unable to leave the home to attend campus classes. This research, which will include the facets of audience appeal and individual learning, will be welcomed in the relatively sparse field of SCA literature.

III. SCOPE AND LIMITATIONS OF THE STUDY

A. Scope

The Audio Instruction Project reflects the responses of selected teachers in a sample of the 15 schools in the Newark public school system. Grades K-9 were included in the study. Senior high school was excluded due to utilization data which evidenced negligible experience with audio instruction due to a smaller number of secondary broadcast offerings and scheduling difficulties inherent in the secondary setting. Both experienced and inexperienced utilizers were required for the study as was adequate software for the grade levels involved.

B. Limitations

1. Methodological

- a. The transfer of the FCC license was filed simultaneously with the beginning of the project. The proposed licensee, Newark Public Radio, Inc. did not receive official approval of the transfer until the conclusion of the project. Consequently, WBGO, licensed to the Newark Board of Education, retained control over scheduling, programming, and transmission during project implementation. The WBGO staff, aware of the impending license transfer, responded to the project with scepticism that caused complications in project implementation. Delayed access to master tapes and subsequent delays in cassette delivery and copyright controversies were two specific results of WBGO's lack of cooperation.

- b. The evaluative consultant was retained on short notice thereby precluding her input into initial project design. This lack of consultant involvement was especially noted in the selection of schools for participation in the pre-project assessment. Sample contamination was suspected in the pre-project assessment.
 - c. Respondents to the pre-project assessment were inconsistent in their completion of the questionnaire. This lack of completion prevented the project from receiving valuable evaluative data and often resulted in small samples of responses for various assessment items.
 - d. The time of year for such a study within the school framework (March-June) is not deemed to be the most propitious for implementation of a classroom project. Newark students and teachers were caught up in a system-wide testing and end-of-year activities. Many respondents to the post-project assessment stated that there was not enough time to devote to audio instruction as they would have preferred.
2. Engineering
- a. Delays were experienced in the delivery of SCA equipment. Initially the SCA monitors received were defective and had to be shipped back to the manufacturer.
 - b. Installation of SCA equipment was delayed due to shipment delays. (Appendix H outlines Engineering considerations).
3. School Environment
- The school climate was one of cynicism, insecurity, and tension

during the project due to a number of actions implemented by the Board of Education. These included:

- a. A series of teacher transfers and teacher lay-offs during the project (one project teacher was transferred to a non-project school).
- b. A series of sweeping budget cuts affecting the total school program.
- c. The Board of Education's demand for the resignation of the Executive Superintendent due to deep philosophical differences (See Appendix B for coverage of these events.)

IV. PRE-PROJECT METHODOLOGY

The process for selecting participating schools began in November when the Office of Newark Studies and the Corporation for Public Broadcasting completed initial discussions regarding the project. The Project Director, Robert G. Ottenhoff initiated the selection process by asking Marie Scanlon, then the Supervisor of WBGO, and Rhoda Appel, Director of Libraries and Ms. Scanlon's immediate superior, to provide a suggested list of participating schools. Several weeks later Mr. Ottenhoff received a list of twenty schools which had been selected by Ms. Appel and Ms. Scanlon. The lists were reviewed to determine that the necessary criteria were met: (1) an adequate distribution of ethnic and racial groups in Newark, (2) an appropriate division among the city's five wards, (3) an adequate and proper distribution among the five assistant executive superintendents. (Under Newark's school system organizational structure, each school within the system is assigned to one of five assistant executive superintendents.) The distribution of the schools in the completed list as compiled by Ms. Scanlon and Ms. Appel met the criteria. After this determination by Mr. Ottenhoff, the lists were submitted to Dr. E. Alma Flagg, Assistant Executive Superintendent, charged with the responsibility of WBGO. Dr. Flagg reviewed the list, approved it, and submitted it for clearance by Stanley Taylor, Executive Superintendent. Mr. Taylor reviewed the list, suggested a few changes in the junior high schools selected, and wholeheartedly approved the elementary list. Mr. Taylor's concern was that the project represent a good mix of Newark Schools and not only those which were always involved in special projects. After receiving the Superintendent's suggestions and sub-

sequent endorsement of the schools suggested for project participation, Mr. Ottenhoff deemed that the school list was sufficient to meet the needs of the project.

After a review of the funding as provided by the Corporation for Public Broadcasting, Mr. Ottenhoff and Brian Brightly of CPB's Office of Educational Activities agreed that the number of schools in the proposed list of participants was prohibitive to the adequate distribution of equipment. Mr. Ottenhoff and Mr. Taylor, Executive Superintendent, proceeded to cut the original list of schools to fifteen. The criteria for elimination were similarity in socio-economic ranges and locations within the city wards and schools. Duplications were randomly eliminated.

In February, when the consultant was retained by Newark Public Radio, Inc., the selection of participating schools was questioned. Although the criteria of equitable distribution was lauded, the consultant expressed concerns for a random sample that would yield reliability and thus be truly representative of audio instruction within the Newark Schools. It was agreed that the pre-project assessment would be additionally administered to a subsample of two randomly selected schools. Respondents were anonymous in the subsample and no letter of explanation from the Executive Superintendent accompanied the questionnaires. These two features represented two major differences from the original sample for the pre-project assessment.

A. Instrument

The draft of the pre-project assessment form was prepared after the consultant met with Mr. Ottenhoff. Mr. Ottenhoff and his immediate superior, Richard Roper, Director of the Office of Newark Studies, reviewed the instrument. The assessment was additionally reviewed by the Director of Audio-Visual Services and an elementary school assistant principal. In Washington, staff members of CPB's Office of Educational Activities reviewed the instrument. A typographical error occurred on page four of the form. On question 11-C, the second option should read "Advisory Committee Participation" rather than "Advisory Comments/Participation."

B. Data Collection

570 pre-project assessment questionnaires were distributed to teachers in the fifteen schools selected for the project on March 1 by Jesse Thomas, Audio Instruction Specialist. The questionnaire was accompanied by a letter from the Executive Superintendent urging the full cooperation of principals and teachers in the completion and return of the material. (See Appendix C for the Executive Superintendent's letter.) 399 questionnaires were returned representing a 70% rate of retrieval.

The completed questionnaires were shipped to the consultant for tabulation. Written commentaries by pre-project respondents were typed by the Newark staff. A representative sample of those commentaries appears in Appendix E.

V. PROJECT IMPLEMENTATION

A. Project Participant Selection

From the pre-project assessment participants, the actual project participants were chosen. The methodology for selection consisted of the division of questionnaires by school into utilizers and non-utilizers (defined as the inexperienced user who has either never used or rarely used). Those assessment questionnaires which were incomplete were then eliminated based upon the assumption that incompletions indicated a lack of care or interest at the outset. From the remaining questionnaires, the project director and the evaluative consultant selected at random two utilizers and two non-utilizers for each of the fifteen project schools. A total of 60 project participants were identified in the process.

It must be emphasized that the selections were made on a random basis with the selectors choosing from stacks of surveys with the responses hidden from view. Although only those fully completed questionnaires were considered for the final selection process, the process was random. To be meaningful, the Audio Instruction Project needed participation by individuals willing to give thoughtful consideration to the project and its ensuing assessments. Those teachers completing the pre-project questionnaire in its entirety were attributed with a sense of professionalism and responsibility deemed as positive factors in the retrieval of valid data on the utilization of audio instruction. Two of these initial project participants had to be replaced early in the project due to teacher transfer and illness. The substitutions were also made on a random basis.

B. Project Seminars

In the original project design, it was planned that the Executive Superintendent would send a letter to each project participant advising him/her of his/her selection and requesting his/her attendance at an important seminar which would outline the project and its implementation. However, during the week of March 7-11, a potential problem between the teachers' union and the Board of Education was feared in regard to the seminars which had been planned for the following week. Contained in the teachers' union contract was a provision against excess in-service training. Given the political climate, the Executive Superintendent feared that the union would consider the seminars to be excessive and therefore require Board payment of overtime to participating teachers. Funds did not exist for such payment. The Executive Superintendent represented management and therefore feared risking possible contract disputes over a letter of invitation to a seminar. The problem was resolved by having Mr. Jerry Simons, Director of Audio-Visual Services, send a letter to the teachers asking their participation in the seminar. The Executive Superintendent sent a letter to the principals in the project schools urging their support of the project. The union issue caused a one-week delay in project implementation.

Project participants received their letters of invitation from March 14-18 announcing the seminars to be held the evenings of March 21-25. The seminars were planned by the evaluative consultant and the Project Director. The Project Director, Director of Audio-Visual Services, and the Audio Instruction Specialist presented the seminars.

Utilizers and non-utilizers alike received the same package of information regarding the Audio Instruction Project. The content of the seminars included:

1. Introduction to goals of project: to make it easier for teachers to utilize audio instruction; to discover teachers' candid reactions to audio instruction and its various delivery systems. It was emphasized that there were no right or wrong answers.
2. Thanks for participation: Director of Audio-Visual Services expressed thanks for teacher participation in light of the negative political climate in the school system; emphasized the positive nature of this project and their selection for it.
3. A Stan Freeburg spot: emphasizing radio's ability to stretch the imagination.
4. What you can do with audio instruction: emphasizing integration into normal classroom activities and curriculum concerns and the importance of preparatory and follow-up activities for audio instruction lessons.
5. Explanation of Audio Instruction Project booklet and the WBGO Teacher's Guide (containing broadcast schedule).
6. Explanation of procedures for obtaining cassettes.
7. Equipment demonstration.
8. Discussion of the necessity for security measures with equipment.
9. Distribution of equipment.

The seminars were held at the Audio-Visual Center during the evening and lasted 1 to 1½ hours depending upon teacher question and comment. Attendance was as follows:

March 21 - 6

March 22 - 7

March 23 - 7

March 24 - 9

On March 31, an additional seminar was held for those teachers who had not attended those of the previous week. Attendance numbered 2, quite low, a fact that the Project Director attributed to the impending spring vacation. Schools were closed for spring vacation April 4-8, so there were no Audio-Instruction Project Activities. On April 11 a seminar was held for 7 teachers. An additional seminar was presented on April 14 for project teachers who were unable to attend the original seminars. Eight teachers were in attendance. In addition, all remaining teachers who had not attended one of the previous six seminars were visited by Jesse Thomas and Jerry Simons, presented with their equipment, and initiated into the project.

C. Equipment Distribution

Every project teacher was provided with a one-channel radio and an audio cassette machine. Half of the project teachers were assigned to channel one (main channel) and half were assigned to channel two (subchannel). Jesse Thomas made routine checks of the receivers to assure that the proper channel assignments were being implemented.

Appendix L outlines specific equipment purchased for the project. The following page taken from the Newark Audio Project's introductory booklet for project participants demonstrates the assignment and explanatory system used for equipment.

PROJECT EQUIPMENT

Each teacher participating in the study will be assigned two pieces of equipment: a radio receiver and a cassette play back machine.

RADIO SET

The radio sets for this project are of a special type not used before in the Newark School System. They are special in that they are fixed so that they can only receive one station: WBGO. In order to operate the radio you need only turn it on - it is automatically tuned to WBGO.

The project is also testing the possibility of adding a second channel to WBGO. The radio sets assigned to you for this project are capable of receiving this additional channel. The switch above the volume switch on your radio controls whether you receive the first channel or the second channel. Please do not move this switch. You will be assigned to receive the first or second channel. The programs and the program schedule will be exactly the same on both channels.

CASSETTE MACHINE

Each teacher in the project will also receive a Wollensak cassette playback machine enclosed in a portable carrying case. To use the cassette player follow these steps:

- 1) plug-in machine
- 2) turn it to the 'On' position
- 3) snap in cassette
- 4) push start button

When you're finished with the cassette, pull back on the eject lever, and 'pop-up' cassette for removal. The unit must be in the stop position to remove cassette.

SECURITY

The Project asks your assistance and cooperation in securing the equipment. We suggest you put the equipment in a locked cabinet or in the principal's office at night.

V. PROJECT IMPLEMENTATION

D. Programming Options

The regularly scheduled instructional radio programs of WBGO were aired over main channel and subchannel simultaneously. Similar programming was used so that the teacher's reactions to main channel and subchannel would be based on technical and operational issues and not on programming options. The following pages, which were taken from the introductory booklet, indicate the programs available to project participants.

PROGRAMS AVAILABLE ON CASSETTE OR RADIO* THIS SEMESTER

Grade (Approximate)	Subject
	ADULT EDUCATION
	African Theatre
	Concert Hour
	Consumer Action On-The-Air
	Crime Detection
	Curriculum Notes On-The-Air
	The Duke, The Count and The King
	Hidden Citizen
	Mayor Gibson Reports
	Mostly Music
	Music Is Alive and Well in Newark
	Newark Now
	Not for Parents Only
	Our Schools Today-By the Executive Superintendent
	The People Are the City
	Senior Citizens in Action-Operation Alert
	AEROSPACE
3 and Up	Spaceship Earth
	BICENTENNIAL
4-6	If You Lived in Colonial America
Varied	Special Programs
	BILINGUAL EDUCATION
2-6	El Abuelo y sus Cuentos
4 and Up	Mr. ESL and his Friends
	BLACK STUDIES
2-4	Tales from the Talk-Talk Hut
2-6	They Led the Way
9 and Up	African Theatre
	CONSUMER EDUCATION
General	Consumer Action On-The-Air
	DRUG ABUSE
1-3	Tools
4-6	Drug Abuse:Dead End
5-9	Alcohol-The Number One Drug Problem

* Check the WBGO program guide for specific time and dates of broadcast.
If a program has already been broadcast this year, you may obtain the program on cassette.

Programs Available on Cassette or Radio This Semester - page 2

Grade (Approximate)	Subject
	FAMILY LIVING
1-3	Tools
2-6	Neighbors
4-7	It Takes a Heap o' Livin' to Make a House a Home
General	Not for Parents Only
General	Hidden Citizen
	GUIDANCE
1-3	Tools
2-6	Neighbors
4-6	Drug Abuse: Dead End
4-7	It Takes a Heap o' Livin' to Make a House a Home
5-9	Alcohol-The Number One Drug Problem
General	Hidden Citizen
General	Not for Parents Only
	HEALTH
K and Up	Calling Dr. Chase
1-3	Tools
4-6	Drug Abuse: Dead End
5-9	Alcohol-The Number One Drug Problem
	LANGUAGE ARTS
Pre-School-K	Mr. Saymore Says
2-3	It's Your Language
2-4	Tales from the Talk-Talk Hut
2-6	El Abuelo Y Sus Cuentos
2-6	They Led the Way
3-8	The Spider's Web
4-6	Adventures in Poetry
4-6	The Golden Shoes
4 and Up	Mr. ESL and his Friends
5-6	Spelldown
8	Fun from the Dictionary
9 and Up	African Theatre
General	It's Your Language
	LAW
General	Crime Detection

Programs Available on Cassette or Radio This Semester - page 3

MUSIC	
K-2	Sing Along with Mr. Smith
3-4	Judy and Friends
7 and Up	The Duke, The Count and The King
General	Mostly Music
General	Concert Hour
General	Music is Alive and Well in Newark
PHYSICAL EDUCATION	
1-3	Play-Along Time
SCIENCE	
K	Justy Why Stories
1	Let-s Find Out - Grade 1
2	Let's Find Out - Grade 2
3-4	Exploring Science
3 and Up	Spaceship Earth
General	Crime Detection
SOCIAL STUDIES	
2-6	Neighbors
2-6	They Led the Way
4	Builders Through Time
4-6	If You Lived in Colonial America
4-7	It Takes a Heap o' Livin' to Make a House a Home
4 and Up	Mr. ESL and his Friends
7-9	Newsbeat
7 and Up	The People are the City
7 and Up	Mayor Gibson Reports
7 and Up	Newark Now
9 and Up	African Theatre
General	Crime Detection
SPEECH	
General	It's Your Language

PROGRAMS AVAILABLE ON CASSETTE ONLY

Grade
(Approximate)

Subject

ADULT EDUCATION

Energy

The Great Ones

Information - The Basic Element of Communication

Inquiry: The Justice Thing

Italians and Science

Singing and Marching Along

Songs of the Presidency

Sound Mind in a Sound Body

BICENTENNIAL

5-8

The Black American

6 and Up

Redcoats and Rebels

8-12

Hats in the Ring

General

The Great Ones

General

Songs of the Presidency

Varied

BILINGUAL

K-1

Que Harias Tu?

K-3

Adelante Ninos

1-3

Saludos, Amigos!

6 and Up

Italians and Science

7-12

El Espanol a Ingles

BLACK STUDIES

5-8

Black American

General

The Great Ones

CONSUMER EDUCATION

1-3

Wise Choices

7-8

Whatcha See is Whatcha Get

ECOLOGY

General

Energy

GUIDANCE

K-1

Que Harias Tu?

K-1

What Would You Do? (english version)

3-5

Who Cares?

4 and Up

Choice Is Yours

General

Hidden Citizen

Programs Available on Cassette Only - page 2

Grade (Approximate)	Subject
	LANGUAGE ARTS
K-3	Learning to Listen
1-2	This Is Phonics
1-3	Pocketful of Poems
1-3	Play Along Time
Primary	Saying By Playing
Primary	Tell It Again
Primary	They Stride the Land
2-6	El Abuelo Y Sus Cuentos
4-8	Your World Opens
6 and Up	Redcoats and Rebels
7-9	World of Words
General	It's Your Language
General	Information - The Basic Element of Communication
General	The Great Ones
	LAW
9 and Up	Inquiry: The Justice Thing
	MATHEMATICS
K-4	Math Power
5-7	Why of Mathematics
7-8	Make It Metric
	MUSIC
K-2	Sing Along with Mr. Smith
K-2	Pathways in Music
3-4	Judy and Friends
3-4	It's Time to Sing
5-6	Up to Your Ears
General	Songs of the Presidency
General	Singing and Marching Along
General	Mostly Music
General	Concert Hour
General	Music is Alive and Well in Newark
	SCIENCE
K	Just Why Stories
1	Let's Find Out - Grade 1
2	Let's Find Out - Grade 2
3-4	Exploring Science
6 and Up	Italians and Science
General	Energy

Programs Available on Cassette only - page 3

Grade (Approximate)	Subject
	SOCIAL STUDIES
3	Newark Long Ago
4	New Jersey, the Little Giant
4	Place Where He Lives
5-6	This Land Is Your Land
5-8	The Black American
Primary	They Stride the Land
Primary	Who's Behind It
6 and Up	Italians and Science
6 and Up	Redcoats and Rebels
7-8	Peopleworks
7-9	Ecco L' Italia
8 and Up	Hats in the Ring
9 and Up	Inquiry: The Justice Thing
9 and Up	The Great Ones
General	Information - The Basic Element of Communication
General	Songs of the Presidency
General	Energy
General	New Jersey Portraits
General	Twentieth Century Presidents

V. PROJECT IMPLEMENTATION

E. Cassette Duplication and Distribution

The cassette duplication service was delayed two weeks after project initiation due to copyright restrictions and tape negotiations with WBGO. The copyright restrictions revolved around the transfer of the license and ownership of programs from the Newark Board of Education to Newark Public Radio.

There was a reluctance on the part of the WBGO staff to permit programs that had not been broadcast to leave their studios. After some discussion it was agreed that the WBGO staff would permit Newark Public Radio, Inc. to take out series of programs, not being broadcast during that semester, on a one day basis. Series were lent for one day and had to be returned before a new series would be cleared for duplication by WBGO. This procedure caused delay in total transfer of tapes to cassettes.

The following two pages taken from the Newark Audio Project's introductory booklet explains the procedures for ordering cassettes.

PROGRAMS AVAILABLE ON CASSETTES

The Audio Instruction Project has put over 200 program series on cassette. Think of these cassettes as your tape library. They are all available to be used whenever you want to use them.

Any program listed in the 1976-77 WBGO program guide - no matter which semester or day it was broadcast - is available on cassette. To obtain the cassettes you want, merely follow the procedures discussed below. If you do not have a WBGO program guide, please call us immediately and we will get you one.

Additional programs that were not broadcast this semester on WBGO are also available. Since these programs are not listed in the WBGO program guide, a short description of these programs is included in this booklet.

OBTAINING CASSETTES

There are two methods available to you to obtain cassettes of programs you wish to use in your classroom:

1. Telephone: Call 733-7280. Ask for Jesse Thomas and give him the names of the programs you wish to order. Mr. Thomas will deliver the cassettes to your classroom no later than the next day.
2. Order Blank. If you would prefer, you may also use the order blank form included in this packet. Send or drop off the completed order blank at the Audio Visual Center, 15 State Street, and the cassettes you've requested will be delivered to your classroom.

TROUBLE NUMBER

If you're having problems with a cassette or the equipment, or have any questions, call Jesse Thomas at 733-7280 immediately.

CASSETTE ORDER BLANK

Name: _____ Date: _____

School: _____ Grade: _____

Telephone 733-7280

Mail: Audio Visual Dept., 15 State St., Newark 07104

[illegible]

VI. POST-PROJECT METHODOLOGY

A. Instruments

A post-project assessment form was developed for teachers and principals in the project with the intent of generating data for the study of delivery systems. Given the structured seminars and the constancy of communications from project staff to project teachers, it was expected that the instrument would further yield comparative data of utilization habits and value judgments. The instruments were reviewed with six school personnel to ascertain clarity and suitability prior to distribution.

B. Data Collection

Jesse Thomas, Audio Instruction Specialist, distributed the principals' and teachers' post-project assessment forms on June 13. A retrieval rate of 88% was obtained from teachers and 79% from principals.

VII. PRESENTATION OF DATA

NEWARK RADIO PROJECT Pre-Project Assessment

Teacher's Name: _____ Date: _____

School: _____ Grade Level(s): _____

This survey should take approximately 10 minutes to complete. Your contribution to the Newark Radio Project is appreciated.

1. Have you utilized WBGO's instructional radio service during this academic year? (307 responses)
- | | | |
|------------------------------|-----|-----|
| ☐ Yes | 212 | 52% |
| ☐ No | 195 | 48% |

2. Have you ever utilized WBGO's instructional radio services? (380)
- | | | |
|------------------------------|-----|-----|
| ☐ Yes | 291 | 77% |
| ☐ No | 89 | 23% |

(IF YOUR ANSWERS TO THE ABOVE QUESTIONS WERE 'NO' PLEASE MOVE TO QUESTION # 12.)

3. How does your current utilization of WBGO's instructional radio services compare to three years ago? (278)
- | | | |
|---|-----|-----|
| ☐ More | 57 | 21% |
| ☐ Less | 80 | 29% |
| ☐ About the same | 106 | 37% |
| ☐ Does not apply | 35 | 13% |

4. Describe your mode of use of WBGO's instructional radio services and the number of minutes you use each mode each week.

Classroom Radio Receivers (229)

☐ 0 mins	31	14%
☐ 1-15 mins/wk	78	34%
☐ 15-30 mins/wk	67	30%
☐ 30-45 mins/wk	26	11%
☐ 45 mins-1 hr/wk	17	7%
☐ 1 hr or more/wk	10	4%

Cassette or Reel-to-Reel Copies of Programs (95)

☐ 0 mins	81	86%
☐ 1-15 mins/wk	3	3%
☐ 15-30 mins/wk	6	6%
☐ 30-45 mins/wk	1	1%
☐ 45 mins-1 hr/wk	3	3%
☐ 1 hr or more/wk	1	1%

Intercom System (127)

☐ 0 mins	84	66%
☐ 1-15 mins/wk	30	23%
☐ 15-30 mins/wk	10	8%
☐ 30-45 mins/wk	2	2%
☐ 45 mins-1 hr/wk	1	1%
☐ 1 hr or more/wk	0	0%

5. How often is radio equipment available when you need it? (264)

☐ Always	149	56%
☐ Most of the time	69	26%
☐ Some of the time	34	13%
☐ Never	12	5%

6. Circle the number in the scale which appropriately describes each of the following statements regarding your use of WBGO's instructional radio services.

	Always	Most of the time	Some of the time	Never
A. I use WBGO's programming in a supplemental manner when programs are directly related to classroom study. (266)	37 14%	77 29%	140 53%	12 4%
B. I use WBGO's programming because it serves as the only source of information in a given area of study. (221)	5 2%	14 6%	88 40%	114 52%
C. I use WBGO's programming in an enrichment manner wherein programs are not related to primary learning objectives.	9 4%	33 14%	158 68%	34 14%

7. Describe the location(s) where students listen to WBGO. (269)

☐ Classroom	267	99%
☐ Media Center/ Library	2	1%

8. Select the groupings used for listening to WBGO radio (309)

☐ Large group listening	254	82%
☐ Individual student listening with headphones	12	4%
☐ Small group listening based on interests	23	7%
☐ Small group listening based on ability level.	20	7%

9. Teacher's Guides

Listed below are some statements about various aspects of WBGO's guides. Please indicate your reaction to each by circling the appropriate number.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
A. WBGO teacher's guides are promptly delivered. (264)	39 15%	131 50%	58 22%	27 10%	9 3%

9. continued

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
B. WBGO teacher's guides offer helpful suggestions in preparing for broadcasts. (256)	49 19%	170 66%	28 11%	9 4%	0 0%
C. WBGO teacher's guides offer helpful suggestions in following-up broadcasts. (253)	33 13%	147 58%	53 21%	19 7%	1 1%
D. WBGO guides clearly outline broadcast schedules. (257)	63 24%	164 64%	23 9%	7 3%	0 0%
E. WBGO guides clearly describe the educational objectives of broadcast offerings. (257)	34 13%	150 60%	57 23%	10 4%	0 0%

10. Value Perceptions

Listed below are some statements about the effect of audio instruction on students. Circle the response that best describes your reaction.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
A. WBGO's instructional radio services improve cognitive skills in students. (255)	19 7%	143 56%	86 34%	6 2%	1 1%
B. WBGO's instructional radio services make substantial improvements in student attitudes. (257)	9 4%	91 35%	145 56%	11 4%	1 1%
C. WBGO's instructional radio holds the interest of students. (260)	19 7%	163 63%	65 25%	12 5%	1 1%
D. Active student participation is included in WBGO programs. (247)	25 10%	134 54%	68 27%	19 8%	1 1%
E. WBGO's instructional radio programs are easily integrated with classroom activities. (262)	28 11%	165 63%	56 21%	12 4%	1 1%

11. Teacher involvement in WBGO's instructional radio services.

A. Which describes the level of teacher involvement in WBGO's program development? (254)	☐ Often	100	39%
	☐ Seldom	122	48%
	☐ Never	32	13%

11. continued

B. How important do you consider teacher input into WBGO's program development? (267)

☐ Very important 150 56%
☐ Moderately important 101 38%
☐ Neither 10 3%
☐ Moderately unimportant 5 2%
☐ Unimportant 1 1%

C. Which describes your contributions to the development of WBGO's instructional programs? (260)

☐ Survey Comments 97 37%
☐ Advisory Comments/ Participation 24 9%
☐ Discussion with radio staff 20 7%
☐ Does not apply 114 44%
☐ Other (specify) 5 3%

(Participation in

Spelldowns)

12. The following conditions might facilitate or hinder the use of WBGO's instructional radio services. In the left column place an "x" in front of the factors which have been most facilitative to your use of WBGO. In the right column, place an "x" after the factors which have most hindered your use of WBGO.

Facilitators

(check all that apply)

UTILIZERS	NON UTILIZERS	TOTAL
188 93%	15 7%	203
137 93%	11 7%	148
237 92%	21 8%	258
191 92%	17 8%	208
198 91%	20 9%	218
179 92%	16 8%	195
127 92%	11 8%	138

Hindrances

(check all that apply)

TOTAL	UTILIZERS	NON UTILIZERS
107	71 64%	36 36%
165	125 76%	40 24%
54	43 80%	11 20%
72	48 67%	24 33%
35	23 66%	12 34%
80	55 64%	25 31%
107	82 77%	25 23%

<u>UTILIZERS</u>	<u>NON- UTILIZERS</u>	<u>12. continued TOTAL</u>		<u>TOTAL</u>	<u>UTILIZERS</u>	<u>NON- UTILIZERS</u>
201 90%	23 10%	224	H. The principal has/has not encouraged utilization of WBO's instructional radio services.	46	31 67%	15 33%
136 93%	11 7%	147	I. Curriculum consultants have/have not encouraged use of WBO's instructional radio services.	100	76 76%	24 24%

13. WBO's instructional radio services look to teachers for future directions. Please share your comments and recommendations regarding audio instruction in the classroom.

Pre-Project participants provided 197 written responses to this item.

Thank you for your assistance!

WHEN YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE PUT IT IN THE ATTACHED ENVELOPE AND RETURN IT TO THE PRINCIPAL'S OFFICE.

GRADE BREAKDOWN OF PRE-PROJECT ASSESSMENT PARTICIPANTS:

<u>Grade Level</u>	<u>Utilizers</u>	<u>Non-Utilizers</u>
Pre-K	2	2
K	23	6
1	36	4
2	36	8
3	37	5
4	38	6
5	33	8
6	32	5
7	19	9
8	22	6
9	2	0
Library	2	0
Special Education	2	0
Emotionally Disturbed	2	0

NOTE: The above figures do not reflect the total number of pre-project participants due to the fact that many respondents failed to provide the requested grade level information. Junior High School grade analysis was difficult in many cases due to multi-level teaching assignments.

NEWARK RADIO PROJECT
Pre-Project Assessment

Teacher's Name: _____ Date: _____

School: _____ Grade Level(s): _____

This survey should take approximately 10 minutes to complete. Your contribution to the Newark Radio Project is appreciated.

1. Have you utilized WBGO's instructional radio service during this academic year? (36)
- | | | |
|------------------------------|----|-----|
| ☐ Yes | 9 | 25% |
| ☐ No | 27 | 75% |

2. Have you ever utilized WBGO's instructional radio services? (34)
- | | | |
|------------------------------|----|-----|
| ☐ Yes | 27 | 80% |
| ☐ No | 7 | 20% |

(IF YOUR ANSWERS TO THE ABOVE QUESTIONS WERE 'NO' PLEASE MOVE TO QUESTION # 12.)

3. How does your current utilization of WBGO's instructional radio services compare to three years ago? (27)
- | | | |
|---|----|-----|
| ☐ More | 2 | 7% |
| ☐ Less | 14 | 52% |
| ☐ About the same | 5 | 19% |
| ☐ Does not apply | 6 | 22% |

4. Describe your mode of use of WBGO's instructional radio services and the number of minutes you use each mode each week.

Classroom Radio Receivers
(14)

- | | |
|--|--------|
| ☐ 0 mins | |
| ☐ 1-15 mins/wk | 11 79% |
| ☐ 15-30 mins/wk | 2 14% |
| ☐ 30-45 mins/wk | |
| ☐ 45 mins-1 hr/wk | |
| ☐ 1 hr or more/wk | 1 7% |

Cassette or Reel-to-Reel Copies of Programs

- | | |
|--|--|
| ☐ 0 mins | |
| ☐ 1-15 mins/wk | |
| ☐ 15-30 mins/wk | |
| ☐ 30-45 mins/wk | |
| ☐ 45 mins-1 hr/wk | |
| ☐ 1 hr or more/wk | |

Intercom System
(3)

- | | |
|--|-------|
| ☐ 0 mins | |
| ☐ 1-15 mins/wk | 2 66% |
| ☐ 15-30 mins/wk | 1 34% |
| ☐ 30-45 mins/wk | |
| ☐ 45 mins-1 hr/wk | |
| ☐ 1 hr or more/wk | |

5. How often is radio equipment available when you need it? (27)

☐ Always	6	22%
☐ Most of the time	11	41%
☐ Some of the time	2	7%
☐ Never	8	30%

6. Circle the number in the scale which appropriately describes each of the following statements regarding your use of WBGO's instructional radio services.

	Always	Most of the time	Some of the time	Never
A. I use WBGO's programming in a supplemental manner when programs are directly related to classroom study. (26)	3 12%	4 15%	14 54%	5 19%
B. I use WBGO's programming because it serves as the only source of information in a given area of study. (21)		1 5%	7 33%	13 62%
C. I use WBGO's programming in an enrichment manner wherein programs are not related to primary learning objectives. (22)		4 18%	10 46%	8 36%

7. Describe the location(s) where students listen to WBGO. (24)

☐ Classroom	23	96%
☐ Media Center/ Library	1	4%

8. Select the groupings used for listening to WBGO radio (23)

☐ Large group listening	23	100%
☐ Individual student listening with headphones		
☐ Small group listening based on interests		
☐ Small group listening based on ability level.		

9. Teacher's Guides

Listed below are some statements about various aspects of WBGO's guides. Please indicate your reaction to each by circling the appropriate number.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
A. WBGO teacher's guides are promptly delivered.	1 4%	9 34%	6 23%	8 31%	2 8%

9. continued

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
B. WBGO teacher's guides offer helpful suggestions in preparing for broadcasts. (28)	18 64%	9 32%	1 4%		
C. WBGO teacher's guides offer helpful suggestions in following-up broadcasts. (27)	15 56%	9 33%	3 11%		
D. WBGO guides clearly outline broadcast schedules. (26)	20 78%	3 11%	3 11%		
E. WBGO guides clearly describe the educational objectives of broadcast offerings. (27)	15 56%	8 30%	4 15%		

10. Value Perceptions

Listed below are some statements about the effect of audio instruction on students. Circle the response that best describes your reaction.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
A. WBGO's instructional radio services improve cognitive skills in students. (25)	9 36%	14 56%	2 8%		
B. WBGO's instructional radio services make substantial improvements in student attitudes. (25)	5 20%	18 72%	2 8%		
C. WBGO's instructional radio holds the interest of students. (24)	15 63%	6 24%	3 13%		
D. Active student participation is included in WBGO programs. (24)	12 50%	9 38%	3 12%		
E. WBGO's instructional radio programs are easily integrated with classroom activities. (24)	14 58%	10 42%			

11. Teacher involvement in WBGO's instructional radio services.

A. Which describes the level of teacher involvement in WBGO's program development? (49)	☐ Often 5 10%
	☐ Seldom 14 29%
	☐ Never 30 61%

11. continued

B. How important do you consider teacher input into WBGO's program development? (24)

- ☐ Very important 11 46%
☐ Moderately important 11 46%
☐ Neither 2 8%
☐ Moderately unimportant
☐ Unimportant

C. Which describes your contributions to the development of WBGO's instructional programs? (22)

- ☐ Survey Comments 11 50%
☐ Advisory Comments/
Participation
☐ Discussion with
radio staff 2 9%
☐ Does not apply 9 41%
☐ Other (specify)

12. The following conditions might facilitate or hinder the use of WBGO's instructional radio services. In the left column place an "x" in front of the factors which have been most facilitative to your use of WBGO. In the right column, place an "x" after the factors which have most hindered your use of WBGO.

Facilitators

(check all that apply)

- | | |
|--------|--|
| 8 9% | A. Equipment is/is not available and in good repair when needed. |
| 13 15% | B. Broadcast schedules are/are not convenient. |
| 13 15% | C. Reception is/is not good. |
| 14 16% | D. There are/are not suitable programs available. |
| 13 15% | E. There is/is not much educational benefit to students. |
| 9 10% | F. Information regarding WBGO has/has not been adequate. |
| 4 4% | G. Other teachers have/have not recommended WBGO's programs. |

Hindrances

(check all that apply)

- | |
|--------|
| 22 18% |
| 12 10% |
| 13 11% |
| 6 5% |
| 4 3% |
| 15 13% |
| 20 17% |

(The five non-utilizers in the experimental schools did not respond to question 12.)

12. continued

H. The principal has/has not encouraged utilization of WBGO's instructional radio services.		
9	10%	13 11%
I. Curriculum consultants have/have not encouraged use of WBGO's instructional radio services.		
5	6%	14 12%

13. WBGO's instructional radio services look to teachers for future directions. Please share your comments and recommendations regarding audio instruction in the classroom.

(11 written responses)

Thank you for your assistance!

WHEN YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE PUT IT IN THE ATTACHED ENVELOPE AND RETURN IT TO THE PRINCIPAL'S OFFICE.

GRADE BREAKDOWN OF RESPONDENTS IN SUBSAMPLE:

	Utilizers	Non-Utilizers
Grade 1	2	
2	1	
3	3	
4	1	
5	1	2
6	1	
7	1	1
8	3	2
Special Ed.	1	

NEWARK RADIO PROJECT
Post-Project Assessment

SCHOOL: _____ GRADE LEVEL(S): _____

Please complete all questions.

1. Describe your use of instructional radio programming prior to this project.

(16)	30%	☐ None
(20)	38%	☐ Occasionally
(3)	6%	☐ 1-15 mins. per week
(7)	12%	☐ 15-30 mins. per week
(2)	4%	☐ 30-45 mins. per week
(2)	4%	☐ 45-60 mins. per week
(3)	6%	☐ One hour or more

2. How did you utilize audio instruction programming during this project?

(43)	53%	☐ Cassettes
(30)	37%	☐ Radio, Channel 1
(9)	10%	☐ Radio, Channel 2
		☐ Intercom

3. Describe the frequency of your use of audio instruction during this project.

(5)	10%	☐ 1-15 mins. per week
(12)	25%	☐ 15-30 mins. per week
(10)	21%	☐ 30-45 mins. per week
(5)	10%	☐ 45-60 mins. per week
(16)	34%	☐ One hour or more

4. What type of groupings did you choose for the utilization of audio instruction?

(47)	64%	☐ Large group listening
(11)	15%	☐ Individual student(s) listening with headphones
(12)	16%	☐ Small group listening based on interests
(4)	5%	☐ Small group listening based on ability level

5. If you utilized listening centers during this project, how would you rate their instructional effectiveness with students?

(13)	34%	☐ Very effective
(13)	34%	☐ Effective
		☐ Ineffective
		☐ Very ineffective
(12)	32%	☐ Does not apply

6. What type of pupil(s) have best responded to audio instruction during this project?

(8)	10%	☐ The slow learner
(14)	18%	☐ the underachiever
(21)	27%	☐ The average achiever of academic ability
(12)	15%	☐ The above-average in academic ability
(1)	1%	☐ The academically gifted
		☐ The mentally handicapped
		☐ The visually handicapped
(9)	12%	☐ All of the above
(11)	14%	☐ Pupil capability is no a factor

7. Circle the number in the scale which appropriately describes each of the following statements regarding your use of instructional radio services.

- A. I use the programming in a supplemental manner when programs are directly related to classroom study.

	Always	Most of the time	Some of the time	Never
(7)	(24)	(17)	(2)	
14%	48%	34%	4%	

B. I use the programming because it serves as the only source of information in a given area of study. (45 total respondents)	(4) 9%	(7) 16%	(18) 40%	(16) 35%
C. I use the programming in an enrichment manner wherein programs are not related to primary learning objectives. (47 total respondents)	(7) 15%	(13) 28%	(22) 47%	(5) 10%

8. Listed below are some statements about the effect of this project's audio instruction on students. Circle the response that best describes your reaction.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
A. Audio instruction improves cognitive skills in students	(12) 26%	(28) 61%	(6) 13%		
B. Audio instruction makes substantial improvements in student attitudes.	(9) 19%	(28) 60%	(9) 19%	(1) 2%	
C. Audio instruction holds the interest of students.	(10) 20%	(31) 62%	(9) 18%		
D. Active student participation is included in audio programs.	(17) 35%	(23) 48%	() 10%	(3) 7%	
E. Audio programs are easily integrated with classroom activities.					

9. Did you undertake any activities before (29) 74% ☐ Yes
you used audio instruction in your classroom? (10) 26% ☐ No
(39 total respondents)
What were they?

Did you undertake any activities after you (30) 81% ☐ Yes
used audio instruction in your classroom? (7) 19% ☐ No
(37 total respondents)
What were they?

10. Listed below are some statements about various aspects of the teacher's guides. Please indicate your reaction to each by circling the appropriate number.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
A. WBGO's teacher's guides offer helpful suggestions in preparing for broadcasts.	(8) 18%	(29) 64%	(7) 16%	(1) 2%	
B. WBGO's teacher's guides offer helpful suggestions in following-up broadcasts.	(7) 16%	(18) 41%	(15) 34%	(4) 9%	

10. (con't)

- C. WBGD's teacher's guides clearly outline broadcast schedules
- D. WBGD's guides clearly describe the educational objectives of broadcast offerings.

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(18) 40%	(19) 42%	(11) 11%	(7) 7%	
(7) 15%	(25) 53%	(12) 26%	(3) 6%	

11: If you utilized audio instruction via cassettes, please complete the following questions:

- A. What factors prompted you to choose cassettes for audio instruction?

- (8) 6% ☐ Student familiarity with cassettes
- (33) 24% ☐ Ease of scheduling
- (30) 21% ☐ Availability of equipment
- (26) 18% ☐ Ease of operation
- (17) 12% ☐ Expanded offerings
- (20) 14% ☐ Potential for individualization
- (7) 5% ☐ Other: _____

- B. Please indicate your reaction to the following statements regarding cassette delivery of audio instruction during this project.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(1) Cassettes were delivered promptly	(21) 51%	(18) 44%	(2) 2%		
(2) The sound quality was adequate	(19) 44%	(21) 49%	(2) 5%	(1) 2%	
(3) Student reaction to cassettes was favorable	(21) 51%	(17) 42%	(3) 7%		
(4) Use of the cassette recorder was handled with ease	(25) 58%	(18) 42%			
(5) Storage of cassettes and equipment posed little or no problem	(24) 56%	(14) 33%	(1) 2%	(1) 2%	(3) 7%
(6) I enjoyed using cassettes for classroom instruction	(29) 67%	(13) 31%	(1) 2%		

- C. Describe any problems you encountered with cassette use.

- D. Describe the major advantages which you perceive in the use of audio instruction through cassettes.

11. (con't)

E. List the titles of the series you utilized during the audio instruction project.

F. What factors prompted your selection of the above series?

(115 total responses)

- | | |
|------------|--|
| (13) 11% | ☐ Quality of series |
| (40) 35% | ☐ Student needs |
| (27) 23.5% | ☐ Curriculum needs |
| (27) 23.5% | ☐ Student interests |
| (5) 4% | ☐ Teacher's Guide |
| (2) 2% | ☐ Encouragement from colleagues |
| (1) 1% | ☐ Other: _____ |

12. If you utilized audio instruction via radio, please complete the following questions:

A. What factors prompted you to chose radio receivers for audio instruction?

(79 total responses)

- | | |
|----------|--|
| (10) 13% | ☐ Student familiarity With radio |
| (7) 9% | ☐ Ease of scheduling |
| (25) 32% | ☐ Availability of equipment |
| (18) 22% | ☐ Ease of operation |
| (13) 17% | ☐ Quality of programming |
| (5) 6% | ☐ Potential for individualization |
| (1) 1% | ☐ Other: _____ |

B. Please indicate your reaction to the following statements regarding radio delivery of audio instruction during this project. (Circle your reponse.)

- (1) The sound quality was adequate (37)
- (2) Student reaction to radio was favorable (36)
- (3) Use of radio was handled with ease (35)
- (4) Storage of equipment posed little or no problem (38)
- (5) There appeared to be little or no difference in sound quality between channel one and channel two (30)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(15) 41%	(21) 51%	()	(1) 2%	
(16) 44%	(17) 47%	(3) 9%	()	
(16) 46%	(18) 51%	(1) 3%		
(15) 39%	(20) 53%	()	(2) 5%	(1) 3%
(5) 17%	(10) 35%	(6) 20%	(18) 27%	(1) 3%

12. (con't)

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(6) The radio I utilized compared favorably with others I have used in the past in the classroom. (32)	(10) 31%	(14) 44%	(4) 13%	(3) 9%	(1) 3%
(7) I enjoyed using a one-station radio for classroom audio instruction (34)	(15) 44%	(14) 41%	(3) 9%	(2) 6%	

C. Describe any problems you encountered with use of radio in your classroom.

D. Describe the major advantages which you perceive in the use of audio instruction through radio.

E. List the titles of the series you utilized during the audio instruction project.

F. What factors prompted your selection of the above series? (85)

(17) 20%	☐ Quality of series
(23) 27%	☐ Student needs
(15) 17%	☐ Curriculum needs
(22) 26%	☐ Student interests
(4) 5%	☐ Teacher's Guide
(3) 4%	☐ Encouragement from colleagues
(1) 1%	☐ Other: _____

13. If you utilized audio instruction via intercom, please complete the following questions:

A. What factors prompted you to chose

intercom delivery of audio instruction? (2) 100%
(2)

- ☐ Student familiarity with the intercom
- ☐ Ease of scheduling
- ☐ Ease of operation
- ☐ Quality of programming
- ☐ Other: _____

13. (con't)

B. Please indicate your reaction to the following statements regarding intercom delivery of audio instruction during this project. Circle your response.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(1) The sound quality was adequate (4)	(2) 25%	(3) 75%	()		
(2) Student reaction to intercom delivery of instruction was favorable (4)	(1) 25%	(2) 50%	(1) 25%		
(3) Coordination of intercom delivery through the school office was handled with ease (4)	(1) 25%	(3) 75%			
(4) Interruptions of intercom lessons was minimal (4)	(2) 50%	(2) 50%			
--(5) I enjoyed using the intercom for classroom audio instruction (4)	(1) 25%	()	(2) 50%	(1) 25%	

14. Please describe your involvement and reaction to the pre-project seminar.

A. I attended the pre-project seminar (44) (27) 61% ☐ Yes (17) 39% ☐ No

B. Listed below are some statements about various aspects of the pre-project seminar. Please indicate your reaction to each by circling the appropriate response.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(1) The objectives of the project were explained (3)	(11) 37%	(18) 60%	(1) 3%		
(2) The programming available through WSGO Radio was adequately reviewed (29)	(13) 48%	(12) 40%	(2) 6%	(2) 6%	
(3) Equipment was adequately explained (30)	(15) 50%	(14) 47%	(1) 3%		
(4) I felt favorable towards the project at the completion of the seminar. (30)	(16) 53%	(12) 40%	(2) 7%		

15. Based upon your exposure to audio instruction during this project, would you use it during the next school year? (45)

(45) 100% ☐ Yes ☐ No

16. If not, why?

(NONE)

- ☐ Equipment is difficult to secure and maintain
- ☐ Broadcast schedules are inconvenient
- ☐ Time does not permit
- ☐ Reception is not good
- ☐ Programming does not suit the needs of students
- ☐ Programs do not hold interest of students.

17. What suggestions would you offer for improvement of WBGO's instructional radio service?

THANK YOU FOR YOUR VALUABLE INPUT INTO THE NEWARK
AUDIO INSTRUCTION PROJECT.

**NEWARK RADIO PROJECT
Post-Project Assessment
Principal's Form**

Principal's Name: _____

Name of School: _____

Thank you for the active involvement of several teachers in your school in the Newark Radio Project. This project would not be possible without your support.

Please complete the following brief questionnaire regarding the audio instruction project.

I. Rate the overall effectiveness of the delivery systems used by the teachers in your school. Circle your response on the scale.

	very effective	effective	neither agree nor disagree	ineffective	very ineffective
A. Cassettes (13)	46% (6)	38% (5)	16% (2)		
B. Radio (12)	42% (5)	58% (7)			
C. Intercom (12)	33% (4)	25% (3)	12% (2)	25% (3)	

II. Describe the major advantages which you perceive in the use of the following delivery systems.

A. Cassette _____

B. Radio _____

C. Intercom _____

III. Please comment on the specific problems you may have encountered with the use of the various audio systems in this project:

A. Cassette: _____

B. Radio: _____

C. Intercom: _____

IV. Do you have other comments? _____

C. INTERVIEWS WITH A SAMPLE OF PROJECT PARTICIPANTS

On June 14, Pat Conner, Brian Brightly, Bob Ottenhoff, and Jesse Thomas met in Newark for the purpose of visiting project schools and obtaining interviews with a sample of project participants to ascertain in-depth evaluations of the Audio Instruction Project. Utilization styles and equipment comparisons were considerations in the interviews. Structured interviews were held with eleven teachers and two principals and were recorded on cassette. The essence of those interviews is addressed in this section of this report.

QUESTION 1: HOW EASILY DID AUDIO INSTRUCTION INTEGRATE WITH YOUR CLASSROOM ACTIVITIES?

- "It made extending extra curricular activities and many other areas of study much easier. There are many areas that I just don't realistically have time to reach, and by using WBGO and cassettes of its programming, I was able to expand my science program, my family living program, my black history program, and numerous other programs I just normally wouldn't have time to get to."
- "My class is a kindergarten so I used mostly all the programs. But I didn't use the cassettes. I used the radio because there was something in the morning and in the afternoon. The schedule was varied, so that each class had something from each program, and it integrated very well."

QUESTION 2: DESCRIBE YOUR STUDENTS' REACTIONS, ATTENTIVENESS, AND INVOLVEMENT WITH AUDIO INSTRUCTION.

- "In my situation, they responded well. They were used to me sitting there, taking out a book, and reading to them or lecturing, as it were; even though it's kindergarten, I'm still up there teaching. When they sit down and listen to the radio, they pick it up quicker. They like the change of voice; they like the fairy tale atmosphere. And a half hour later I will see them in the corner roleplaying what they heard; so I like it!"

- "Most of the students were very eager when I went to put a tape on because they knew it was going to be a different type of exercise. They were motivated by the fact that it was a deviation from any normal activities. I would say the few that weren't interested either way are usually the ones that don't particularly care to become involved in anything like this. But they all listen and do pick something up, even the ones that normally turn you off listen to some of it.

QUESTION 3: WHAT TYPE OF STUDENT BEST INTERACTS WITH AUDIO INSTRUCTION?

- "All of my students responded well to audio instruction. I have what is considered a middle group, but I consider them a top group."
- "I think all students do. Sometimes it is more difficult for the slower ones, because they don't always understand, and you can't back up with radio. With a cassette you could stop it and explain it further for them. But I think it could benefit all types of children."
- "I have a low third grade, and it seems that any activities that had movement they enjoyed the most. And I think they benefited by it more than anything else, because they like to move around; they like to be doing things."
- "I was able to use the radio programs with the entire class. When I do have a slower group, and I think I will next year, I will divide it up into listening centers. This year's group was a very smart second grade, so I could use radio on a class level. It held their attention, especially the programs where they could sing along. The programs had entrance songs and closing songs. The children just learned them and after day one, they were so happy to listen to it after singing the songs and really getting into it."

QUESTION 4: WHAT SPECIAL CONTRIBUTIONS, IF ANY, DID AUDIO INSTRUCTION
MAKE TO YOUR TEACHING?

- "As a sixth grade teacher involved in the Read and Write Program, I felt that the tapes were very beneficial because I could incorporate it into what I was doing and what I enjoyed. With the tapes at hand, I could use them at any time of day. I found that some programs were lacking when they used classroom situations over the radio where the teacher asks questions and the students respond. I don't particularly like this kind of program because kids are in a classroom all day, and I don't want them to feel that there is another teacher taking over. I find that kids today are not grasping the material because their listening skills are poor. I feel that WBGO's radio programs are a help. I really enjoyed the tapes. I just wish I could keep the tapes, progress even more, and make my own little library."
- "Radio definitely built up listening skills. When the teacher on the radio asked a question, the children responded, so I know they were listening. When given directions for a game or physical activity, they would listen and respond. Radio definitely builds children's listening skills, and I think that is very good."
- "Some of the children don't seem to take it seriously when you're saying it in the classroom, but when they hear it on the cassette, they think, "Oh, what she said is really true." This was particularly true with the slower students."
- "I will certainly use radio next year, because it breaks up the monotony during the day. The children are interested in it, and for the type of class I have, I am thinking of their needs too, because they cannot sit in their seats all day reading and writing. They have to have some other things brought into the program."
(This respondent had a low level third grade.)
- "I think the cassettes from WBGO have opened up the whole idea of using one of our senses which the children had gotten away from. . . LISTENING. My children now realize that stories you hear can be just as interesting and exciting as those that you see. This is something that I had been trying to impress upon them all year. But with the use of cassettes they were really able to understand that the written word and the spoken word can be just as exciting as visual objects."

QUESTION 5: DID YOU PREFER RADIO OR CASSETTE FOR THE DELIVERY OF AUDIO INSTRUCTION? WHY?

- "I liked the cassette because it provided for individualized instruction and it also afforded me the opportunity to be able to schedule it according to our needs, rather than specifically geared to a radio air time. I individualized with cassettes based on interest and ability. I have several students who are really very bright and are able to finish their normal seat work very quickly, and this becomes a problem in that sometimes I can't find enough work for them to do and satisfy their needs. So I made the cassette tape available to those children. When they had finished their assignments they could then go back to the listening station, at their leisure, to whatever stories or whatever subject area they wanted to. I also used it as a kind of reinforcement with groups in reading, social studies, and other areas too. I like cassettes in the sense of scheduling, and I guess also because I am able to replay. If the children didn't get the concept the first time, we can replay it over and over until they do. But if I'm listening to the radio, the show is over and something else comes on. With a cassette, I can stop the tape and rewind, when necessary, an ability which I did not have using the radio. My children have been very excited about this. Please continue to expand and let me be a part of it next year!"
- "I think audio instruction is needed. I am excited about the fact that what's on radio is on cassette. It's a movement in the right direction. It's like the answer to all my problems with the radio. I have wanted to use the radio, but it's just a matter of convenience. And the cassette has done what I wanted to do. And I have used it, and next year, if I can get a hold of it, I'll use it again."
- "My youngsters didn't prefer cassette over radio or vice-versa. For myself, I liked the cassette because you could play it over and over. If you didn't get it all this week you could play it next week. As far as the radio is concerned, you got it on the spot. We may be out of the classroom at the time the program is coming on. If you have a cassette, you can get it later." "Cassettes can assist me in long-range planning. Like with Math Power, it did not correlate with what I was doing in the classroom, but with the cassettes it really works out better in planning. And this is where individualization helps."

- "I only used the cassette once because the radio was very good for me; it fit right into my daily activities, so I didn't have a need for the cassette. The radio schedule was perfect for me. I had a program every noon and every morning. The students looked at the radio while they listened."
- "Well, in my situation, I prefer the radio and the tapes, and I hate the intercom system for many reasons. You have to contact the office, and they are very busy. Sometimes they are late in switching it on or off, plus the volume never comes out the right way. And the kids really refer to the intercom as the "idiot box". With radio and cassettes, I can get into group activities; not so with the intercom up on the wall. The listening skills are wasted with the intercom."

QUESTION 6: DID YOU FIND THE TEACHERS' GUIDES TO BE OF VALUE? DO YOU HAVE ANY SUGGESTIONS FOR THE FUTURE?

- "I know it is a great deal of work, however, if WBGO could get someone to be solely involved with guides, to prepare lessons with suggestions to use before and after the program, and even criterion-reference tests related to the material, I think the programming would be much more valuable. It's valuable just to have it in hand, because the teacher's time is limited. We just don't have the time. Now this doesn't mean that the teacher would have to adhere solely to this. These would be suggestions, and I think it would be extremely valuable. When you put the material in front of somebody, they are much more ready to pick it up and use it than make the time to prepare their own. Because sometimes the time just isn't there, as much as you want it to be."

QUESTION 7: DID YOU FIND EQUIPMENT SECURITY TO BE A PROBLEM? DESCRIBE YOUR SECURITY MEASURES.

Out of eleven individuals interviewed, all attested to the ease of security of equipment. Teachers usually locked the equipment in their classroom closets and, in some cases, took it home with them. Equipment security is a traditional issue and often a barrier to the utilization of audio instruction. It is hypothesized that teacher enthusiasm for audio instruction reduced the problems and complaints normally associated with security procedures associated with audio-visual equipment. The Project Director reported that one radio receiver was stolen during the course of the project.

QUESTION 8: DID YOU EXPERIENCE ANY RECEPTION PROBLEMS WITH RADIO?*

(None of the interviewees reported reception problems.

- * Radio equipment for the project consisted of a fix-tuned, one-channel receiver, half of which were tuned to WBGO's main channel, and the other half, to WBGO's subchannel. Therefore teacher reference to radio is all-inclusive for SCA and main channel. It is significant that the interview subjects noted no reception problems.

QUESTION 9: WHAT RECOMMENDATIONS DO YOU HAVE FOR WBGO IN THE FUTURE?

-- Additional programming in the areas of:

Black History

Science

Math

Language Arts

Mythology

In-Service Training for Teachers

-- Program Formats:

Physical activity for lower grades

Repetition for slower students

Dramatizations for intermediate and upper grades

-- Utilization Workshops:

"I was totally confused as to why I was chosen for this project. I never used radio. It really opened up a new avenue for me. I might never have used WBGO. I mean, once in a while, yes, when children from my classroom were on, I might have turned it on. But now I'm aware of the programs and the cassettes and everything, and I feel that I will continue to use it. What you don't know can hurt you. If it would be possible, WBGO should go to the schools, have workshops to introduce teachers to equipment and programs that are available. I know you've got a booklet, but the booklet went to the bottom of my drawer every year!"

VIII. ANALYSIS OF DATA

A. Pre-Project

1. Sample

A study of the data gathered by the pre-project assessment administered to the 570 teachers in the original sample reveals several inconsistencies in statistical comparisons. These inconsistencies can be attributed to: (1) confusion as to the intent of assessment items; (2) incomplete answers due to respondent apathy; (3) sample contamination; (4) fear of reprisal in that respondents were identified by name. It is important to note that the number of respondents to each item varied widely.

Besides the statistical inconsistencies which shall be addressed in subsequent paragraphs, readers should note teachers' commentaries (Appendix E), many of which were of a defensive nature. Several teachers commented that they had heard the radio station was going to be taken away from the school system. In one case, a teacher appeared to be privy to information that would ordinarily be of a private nature to WBGO management. This particular respondent had given a low rating to WBGO's prompt delivery of teachers' guides and then proceeded to explain that it was not WBGO's fault because the Board had failed to pay the printing bill. Such remarks reflect the attitude that the questionnaire was originated by a source beyond the school system and WBGO. The highly supportive cover letter from the Executive Superintendent would seem to allay such suspicions.

Item #1 of the pre-project assessment asked if teachers had utilized WBGO's instructional radio services during the current school year. 52% (212/407) of the respondents answered positively.

Item #2 had as its intent the determination of the percentage of teachers who had experienced classroom radio prior to the 1976-77 school year. A strong 77% (291/380) responded positively. This data, when compared to the responses for item #1, suggests a substantial reduction in utilization during the current school year.

Item #3 sought comparisons of current utilization to utilization three years ago. 37% (106/278) responded that their utilization of WBG0 was "about the same" and 21% (57/278) said that it was "more." A comparison to items 1 and 2 reveals statistical inconsistencies. It must be noted that the respondents to item #3 numbered only 278 as compared to 407 for item #1 and 380 for item #2. The disparities in items 1, 2, and 3 are questioned.

In item #4 the classroom radio receiver proved to be the predominant mode of delivery with the frequency closely placed between 1-15 minutes per week and 15-30 minutes per week. Several teachers checked multiple responses on delivery systems. Only 14% (14/95) indicated previous use of cassettes or reel-to-reel copies of programs and 34% (43/127) reported use of the intercom. It must be noted that smaller numbers of respondents reported experience with tapes and intercom. Intercom use was largely 1-15 minutes/week. Teachers' commentaries indicate that the lack of direct control over the intercom system and the quality of the sound system are negative factors in the use of the intercom system. It must be reported that WBG0 had not encouraged the taping of radio programs for use in classrooms because no system or facilities existed for widescale taping.

Item #5 evoked an even smaller number of responses with 264 teachers describing the availability of radio equipment. 56% reported that it was "always" available. Teachers' commentaries indicated a dearth of radio receivers.

Item #6 sought a description of the use of WBGO's programming. In retrospect, the terminology is thought to be confusing, but nonetheless, the intent was to discern if a teacher used radio in the following manners:

Supplemental = directly related to classroom study

Only Source = served as only source of information
on a given topic.

Enrichment = indirectly or unrelated to classroom study

53% (140/266) responded that supplemental use was in practice "some of the time," with 14% (37/266) responding that supplemental use was "always" used, and 29% (77/266) responding that radio was used supplementary to classroom study "most of the time." 52% (114/221) stated that WBGO was "never" the only source of information in a given area of study. 68% (158/234) reported use of WBGO programming as enrichment "some of the time."

Item #7 overwhelmingly showed that the classroom setting is where WBGO is heard. 99% (267/269) of the respondents to this item reported classroom use as opposed to a media center or library.

In item #8, large group listening proved to be the dominant grouping for listening to instructional radio. 82% (254/309) responded in item 8 that the large group was their grouping format.

Item #9 in the pre-project assessment dealt with aspects of WBGO's teachers' guides. 50% (131/264) of the respondents agreed that guides were promptly delivered.

In the 1976-77 school year, for example, a strike by the non-instructional personnel union, which included the persons responsible for delivering the program guide, meant the guides were not distributed to most teachers until early October, 3 to 5 weeks after school had begun.

In several previous years, problems over printing bills had caused anywhere from one to three month delays in delivery.

66% (170/256) of the teachers agreed that the guides offered helpful suggestions for preparation of the programs, while 58% (147/253) concurred for follow-up suggestions. Broadcast schedules are clearly outlined in the guides according to the respondents, with 64% (164/257) in agreement. 60% (150/251) agreed that the guides clearly outlined educational objectives of the offerings.

Item #10 questioned teachers about their value perceptions of WBGO's instructional radio services. Teachers in the sample were in general agreement as to radio's ability to improve students' cognitive skills, to hold student interests, and to integrate with classroom activity. 54% (134/247) attested to the active student involvement in WBGO programs. 56% (145/257) neither agreed nor disagreed that instructional radio makes substantial improvement in student attitudes.

The intent of item #11 was to ascertain teacher involvement in the development of instructional radio services. 61% of the respondents described their involvement as "seldom" or "never", yet 94% rated teacher input into program development as "very important" or "moderately important." In a description of specific types of teacher involvement, 37% responded to "survey comments", while 44% said "does not apply". This data indicates that teacher's needs are not being ascertained. They have demonstrated their view of the worthiness of teacher input, but this sample has not been presented with adequate opportunities to contribute to WBGO.

The final item of the pre-project assessment was an analysis of facilitators and hindrances to utilization. Teachers were encouraged to select only those conditions that had helped or hindered their utilization. The majority of responses checked every factor in one capacity or the other, thereby reducing the validity of this item.

A comparison of the placement of facilitators by utilizers and non-utilizers follows (in descending order):

<u>UTILIZERS</u>	<u>NON-UTILIZERS</u>
1. Reception quality	1. Principal's encouragement
2. Principal's encouragement	2. Reception quality
3. Educational benefit	3. Educational benefit
4. Program suitability	4. Program Suitability
5. Equipment availability	5. Public information

6. Public information
7. Schedule convenience
8. Curriculum consultants'
9. Peer recommendation

6. Equipment availability
7. Schedule convenience, peer recommendation, and curriculum consultants' encouragement

A comparison of the rankings of hindrances by utilizers and non-utilizers is as follows:

<u>UTILIZERS</u>	<u>NON-UTILIZERS</u>
1. Schedule convenience	1. Schedule convenience
2. Lack of peer recommendation	2. Equipment availability
3. Curriculum consultants' encouragement	3. Public information and lack of peer recommendation
4. Equipment availability	4. Program suitability and curriculum consultants' encouragement
5. Public information	5. Principal's encouragement
6. Program suitability	6. Educational benefit
7. Principal's encouragement	7. Reception quality
8. Reception quality	
9. Educational benefit	

As was mentioned in the limitations, there were varying levels of completion of the assessment questionnaires. However, those utilizers who provided grade level information were heavily concentrated in grades 1-5. Sparse utilization was reported by respondents in libraries and in classes for special education students and the emotionally disturbed.

2. Sub-Sample

In light of the suspicion of sample contamination on the pre-project assessment, two schools were randomly selected to participate in the pre-project assessment. Respondents remained anonymous, in contrast to the teacher identification required of participants in the original sample. No cover letter of explanation from the Executive Superintendent accompanied the instrument.

The most significant differences in the responses of the sub-sample in the non-project schools occurred in items, 1, 3, 5, 9, 10, and 12. In item #1, the sub-sample reported that 25% (9/36) had utilized WBG0's instructional radio services during the academic year, whereas the sample in the project responded with a rate of 52% (212/407) for utilization during the current academic year.

For item #3, the subsample reported that current utilization was less than in previous years. 52% (14/27) responded to "less" utilization of WBG0. In contrast, the sample in the project schools responded with 21% (57/278) "more", 29% (80/278) "less", and 37% (106/278) to "about the same". The subsample in the non-project reported that 80% (27/34) had utilized WBG0 in the past.

The disparity of responses in item #5 in regards to equipment availability is quite evident, as is demonstrated below:

Project Schools <u>Sample</u>	Non-Project Schools <u>Sub-Sample</u>
56% (149/264) Always	22% (6/27)
26% (69/264) Most of the time	41% (11/27)
13% (34/264) Some of the time	7% (2/27)
5% (12/264) Never	30% (8/27)

Item #9 queried the teachers' reactions to statements regarding the WBGO teachers' guides. The statement "WBGO teachers' guides are promptly delivered" drew the strongest disagreement from the subsample in the non-project schools. A comparison of responses is below:

<u>Project Schools Sample</u>	<u>Non-Project Schools Subsample</u>
15% (39/264) Strongly agree	4% (1/26)
50% (131/264) Agree	34% (9/26)
22% (58/264) Neither agree nor disagree	23% (6/26)
10% (27/264) Disagree	31% (8/26)
3% (9/264) Strongly disagree	8% (2/26)

In item #10, value perceptions regarding the effect of audio instruction were sought. The most significant difference in the response of the subsample occurred with instructional radio's role in the improvement of cognitive skills in students. 56% (14/25) of the subsample neither agreed nor disagreed that WBGO's instructional radio services improved cognitive skills. 56% (143/255) of the respondents in the sample of project school agreed with the value statement.

The subsample's ranking of facilitators and hindrances also differed from the sample of respondents in project schools. The subsample responses to item #12 follow, along with a comparison of sample responses:

VIII. ANALYSIS OF DATA

SUB-SAMPLE RESPONSES

Facilitators

Hindrances

- | | |
|--|---|
| 1. Program suitability | 1. Equipment availability |
| 2. Schedule convenience, reception quality, educational benefit. | 2. Peer recommendation |
| 3. Public information and principal's encouragement | 3. Public information |
| 4. Equipment availability | 4. Lack of curriculum consultants' encouragement. |
| 5. Curriculum consultants' encouragement | 5. Reception quality and lack of principal's encouragement. |
| 6. Peer recommendation | 6. Schedule convenience |
| | 7. Program suitability |
| | 8. Educational benefit |

SAMPLE RESPONSES

Facilitators

Hindrances

- | | |
|--|--|
| 1. Reception quality | 1. Schedule convenience |
| 2. Principal's encouragement | 2. Equipment availability and lack of peer recommendation. |
| 3. Educational benefit | 3. Lack of curriculum consultants' encouragement |
| 4. Program suitability | 4. Public information |
| 5. Equipment availability | 5. Program suitability |
| 6. Public information | 6. Reception quality |
| 7. Schedule convenience | 7. Lack of principal's encouragement |
| 8. Curriculum consultants' encouragement | 8. Educational benefit |
| 9. Peer recommendation | |

In conclusion, the major differences between the sample and the subsample were as follows:

- lower rates of utilization in the subsample schools
- less availability of equipment in subsample schools
- less prompt delivery of teacher's guides in subsample schools
- 56% (14/25) of the subsample reported no opinion on radio's ability to improve cognitive skills as opposed to 56% (143/255) of the sample agreeing with the statement. A similarity between the sample and subsample responses is the high ranking each group gave lack of equipment availability and lack of peer recommendation as a hindrance to utilization.

The disparity between the sample and subsample concerning utilization levels appears to be based on the fact there was less equipment available and there was a later delivery of guides. The lower utilization levels of audio instruction in the subsample schools are then understandable. Eighty per cent (80%) of the subsample respondents reported previous experience with utilization of instructional radio. Therefore, significant credibility must be attributed to their attitudinal responses in items 10 and 12. Responses of the subsample should be kept in mind when reviewing or analyzing the overwhelming positive responses of the major sample. Based on the above, the legitimacy of the original sample is upheld.

B. Post-Project

1. Teachers

The post-project assessment questionnaire revealed that 30% (16/53) of the participants had never utilized instructional radio prior to the project; 38% (20/53) reported occasional use in the past, not on a weekly basis; whereas the remainder of the respondents, 38% (17/53) reported past utilization on a weekly basis with regularity.

When provided with radio receivers and cassettes, 53% (43/82) of the utilization occurred with cassettes, and 47% (39/82) with radio. It should be noted that project teachers were provided one-channel radios, wherein channel one was tuned to WBGO's main channel, and channel two was tuned to the sub-channel. Programming was duplicated on both channels with the exception of the final three weeks of the project when SCA testing was ongoing. Half of the radio receivers were tuned to main channel and the other half, to subchannel. The data does not support this distribution due to the fact that there was some confusion on the part of project teachers as to which channel they listened.

The frequency of utilization was a factor determined by project participants. 34% (16/48) reported utilization of one hour or more per week.

Large group listening continued to be the grouping most often employed by teachers. Those teachers provided with listening centers and headphones rated their instructional effectiveness highly.

In asking teachers to identify students most likely to respond to audio instruction, the responses were scattered, as indicated below:

The slow learner - 10% (8/78)
The underachiever - 18% (14/78)
The average achiever in academic ability - 27% (21/78)
The above-average in academic ability - 15% (12/78)
The academically gifted - 3% (2/78)
The mentally handicapped - 1% (1/78)
The visually handicapped - 0% (0)
All of the above - 12% (9/78)
Pupil capability not a factor - 14% (11/78)

Teachers viewed the use of audio instruction as "supplemental" to classroom study as opposed to "enrichment" or the "only source of information."

In a description of audio instruction's effect upon students, the great majority of teachers agreed with the following statements:

	<u>Agree</u>	<u>Strongly Disagree</u>
A. Audio instruction improves cognitive skills in students.	61% (23/46)	26% (12/46)
B. Audio instruction makes substantial improvements in student attitudes.	60% (28/46)	19% (9/46)
C. Audio instruction holds the interests of students.	62% (31/50)	20% (10/50)
D. Active student participation is included in audio programs.	56% (27/48)	23% (11/48)
E. Audio programs are easily integrated with classroom activities.	48% (23/48)	35% (17/48)

A majority of teachers undertook activities in preparation for or follow-up of audio instruction. 74% (29/39) reported preparatory activities such as the following:

1. preview of program via discussion
2. skills drill
3. preparation to take notes
4. use of maps
5. role playing
6. rhythm activities
7. films, filmstrips, records
8. art projects
9. field trips
10. vocabulary review

81% (30/37) reported follow-up activities with audio instruction. A sample of these activities include:

1. quizzes
2. discussion
3. listening games
4. artwork
5. creative writing and subsequent recording and playback
6. listing of important facts
7. reading of related literature
8. drill of skills at chalkboard

Teachers agreed that the teachers' guides were helpful in preparing for and following up programs and that they clearly outlined schedules and educational objectives.

Teachers utilizing cassettes most often chose ease of scheduling and availability of equipment as the factors which prompted their choice of cassettes. A number of responses also noted the cassettes' ease of operation, expanded offerings, and potential for individualization as contributing factors.

Also evoking strong agreement were statements regarding the prompt delivery of cassettes, adequate quality of sound, favorable student reaction, ease of recorder use, storage of equipment, and enjoyment of cassette use.

Teachers reported very few problems associated with the use of cassettes. In a limited number of cases, the voice quality on the cassettes was criticized and a few teachers said that security was an ever-present problem with audio-visual equipment.

When queried as to the advantages of cassettes, teachers enthusiastically endorsed the cassette as a means for individualization. They repeated time and again the inherent advantage in the capability of stopping the cassette, backing it up, and repeating it for students when a concept was not clear. The ease of scheduling cassettes was by far the overriding advantage of the cassette in the opinion of the project participants. Cassettes were not viewed as an interruption of the schedule and were reported to promote improved planning of integrated learning units. Teachers lauded the many groupings in which the cassette could be utilized with success, noting that students could choose cassettes for private, personal listening in many cases.

In identifying the factors involved in teacher selection of series available on cassette, teachers chose the following factors as instrumental: (1) student needs, (2) curriculum needs, (3) student interests.

Teachers utilizing radios (main channel and subchannel) chose availability of equipment and ease of operation as the main factors in their choice of delivery systems.

The majority of teachers agreed with statements regarding adequate sound quality, favorable student reaction, ease of use of radio, and storage of equipment. When asked to indicate reaction to the statement that there appeared to be little or no difference in sound quality between channel one (main channel) and channel two (subchannel), responses were as follows:

strongly agreed - 17% (5/30)

agreed - 33% (10/30)

neither agreed nor disagreed - 20% (6/30)

disagreed - 27% (8/30)

strongly disagreed - 3% (1/30)

Teachers favorably compared the one-station receiver with radio receivers used in the past.

In a discussion of problems related to use of the radio, teachers most often cited scheduling difficulties. Programs were often scheduled at inconvenient times; several teachers reported displeasure at having to arrange their classroom schedule around the radio broadcast schedule. Subchannel received some criticism for intelligibility during the first two weeks of operation.

In assessing the major advantages of radio as a means of audio instruction, teachers cited ease of operation; the feeling of "liveness", reality and legitimacy students attributed to a radio broadcast; the immediacy of the product in not having to wait for tape delivery; and the ability of radio to develop listening skills.

In identifying the factors influencing choice of a series available on radio, teachers responded as follows: (1) student needs, (2) student interests, (3) quality of series, and (4) curriculum needs.

Responses to questions regarding the use of the intercom for audio instruction are limited in that only two project participants utilized audio instruction in this manner. Both rated student familiarity with the intercom as the factor which prompted choice of the delivery system. With only two respondents, an analysis of their responses to statements regarding the delivery system would not be significant.

A major highlight of the study was that, the pre-project seminar for project participants received an attendance of 61% (27/44). (It should be noted that the Audio Instruction Specialist gave individual instructions to those teachers missing the seminars.) The great majority of those in attendance agreed that the objectives of the project were explained, that programming was adequately reviewed, that equipment was adequately explained, and that they felt favorable towards the project at the conclusion.

Perhaps the most significant highlight of the project is that 100% of the post-project respondents said that they would utilize audio instruction in the next school year based upon their experiences during this project.

2. Principals

Thirteen of fifteen project schools' principals responded to the principals' questionnaire during the post-project activities. For cassettes, 46% (6/13) rated their use "very effective" while 38% (5/13) responded with "effective".

In assessing the effectiveness of radio (main channel and subchannel), 42% (5/12) rated radio as "very effective", and 58% (7/12) rated it as "effective".

Intercom utilization revealed some comparative differences. 33% (4/12) rated intercom delivery as "very effective"; 25% (3/12), as "effective"; 12% (2/12) neither agreed nor disagreed; and 25% (3/12) rated intercoms as "ineffective".

The principals' questionnaire was intentionally briefer considering the wide-ranging responsibilities of that position at the time of year the post-project assessment was implemented. Principal perceptions of the advantages and problems of the three delivery systems were assessed. Those remarks are contained in Appendix F, part 3. They basically parallel teachers' remarks. Obviously, principals expressed concern for replacement of radios if stolen. Principals defended the use of intercom, in many cases, for internal communications as opposed to instructional delivery of audio programming.

Additional comments by principals were very supportive of the project and the results it obtained for individual teachers and students.

IX. CONCLUSIONS

Four major questions and five hypotheses were raised at the onset of the Newark Audio Instruction Project. This conclusion will address those questions as they relate to the data generated and the hypotheses will be supported where the data suggests confirmation.

A brief summary of the conclusions would be as follows: A delivery system for audio instruction has a definite influence on the level and quality of utilization. Cassette use expands the applications of audio instruction and the frequency of use. Individualization appears at a greater frequency with the use of cassettes due to the lack of scheduling constraints inherent in cassettes. Audio instruction can be effectively utilized with a wide range of students with special needs. Equipment availability, guidance in utilization, program information, and multiple delivery systems are positive variables in the utilization of audio instruction.

QUESTION #1: TO WHAT EXTENT DOES A DELIVERY SYSTEM FOR AUDIO INSTRUCTION INFLUENCE THE LEVEL AND QUALITY OF UTILIZATION?

-- The results of this study evidence that a delivery system does influence the level and quality of utilization. The majority of project teachers chose cassette use for its flexibility in scheduling and grouping situations. The utilization of cassettes was higher than for radio or subchannel and judging from the interviews and questionnaire responses, the quality of cassette utilization was optimum. Teachers reported high levels of significant involvement in cassette utilizations, preparing students for the lessons, following them up, and often generating spin-off activities. The desire for teacher control over the rate of informational delivery was evidenced by the widespread popularity of the "start-stop" method of cassette use.

Teachers utilizing radio and/or SCA were equally creative and successful with their use. However, individualization was much more in evidence with cassettes. Those teachers reporting high degrees of satisfaction with radio and subchannel were those exhibiting a great deal of organizational and pre-planning talents. 34% (16/48) of project participants reported usage of audio instruction of one hour or more per week compared to 4% (10/229) for radio users in the pre-project assessment and 1% (1/95) for tape users in the pre-project assessment. The higher levels of frequency reportage in the post-project assessment was for radio (main channel and SCA), cassettes, and intercom combined.

-- It is important to remember that half of the project participants were inexperienced utilizers of audio instruction prior to the project. Therefore, there was evidence that imagination and adaptation were contributing factors in increased utilization.

-- Given both radios and cassettes, 53% (43/82) of the project participants chose cassette use. This study demonstrated that the use of audio cassettes as a delivery system for audio instruction increases utilization levels considerably as a result of their utilization flexibility within the teachers' schedule of classroom activities. The frequency of utilization was increased in the post-project results as compared to the pre-project data where cassettes were not available. The accessibility to audio instruction upon demand or when a need justified its use is a feature that made use of the cassette a positive addition to the classroom according to the commentaries of many teachers.

-- Project participants utilized audio instruction on an individualized or small group basis more than did pre-project participants. 82% (254/309) of the pre-project participants reported large group listening as opposed to 64% (47/74) in the post-project assessment. Project participants reported individual listening with headphones and listening centers, small group listening based on interests, and small group listening based on ability levels.

Teachers were quite vocal in their praise of the cassette's ability to individualize in that it can be stopped, rewound, and played again for students with special learning problems who might not comprehend the information upon the first play. Cassette use was also touted as an excellent way of using small groups effectively, thereby releasing the teacher to work with other groups of students with special needs. Access to cassettes was also praised as a major contribution to teachers in terms of planning integrated units of learning. It is concluded that access to cassettes is a positive factor in the improvement of the level and quality of utilization of audio instruction.

-- 68% (26/38) of the project participants utilizing listening centers with headphones reported their use to be "very effective" to "effective". These results are directly attributed to a multi-delivery system and access to equipment providing for innovative use through listening centers.

-- Utilizers of radio and/or cassettes gave consistently high ratings to the ability of each medium to deliver satisfactory audio instruction. Also receiving positive support were statements related to sound quality, favorable student reaction, and ease of use and storage.

-- Several utilizers of radio said that the instructional material was well-received by their students due to the "legitimacy" or "reality" associated with a radio broadcast. This student perception of radio has been mentioned in other reports as a major strength of radio in the classroom.

-- Only two project participants utilized the intercom system for the delivery of audio instruction, a number deemed insignificant for analysis. However, due to widespread negative remarks from teachers and principals, the intercom is not supported as a viable delivery system for audio instruction. Principals had opportunities to utilize the intercom for a variety of reasons and were therefore somewhat more positive in their evaluations of the system in the post-project assessment than were teachers. Teachers in both the pre-project and post-project assessments commented that use of the intercom for audio instruction necessitated precise planning and timing and more often than not was considered a "hassle", by the teachers and/or office personnel. Intercoms certainly have a role in schoolwide communications, but for sustained delivery of audio instruction, the intercom is unsatisfactory. Its audio quality is less than adequate in most cases, due to classroom acoustics and widespread use of antiquated intercom systems. The capacity for individualization is eliminated with use of the intercom.

-- Utilizers of radio (main channel and subchannel) were quite vocal in their acceptance and endorsement of the receiver for the project. Many teachers commented on the ease of operation in that the receiver was "fix-tuned" to WBG0 (half to main channel and half to subchannel), and all that was required of the

teacher to receive the instructional material was to turn on the one and only knob on the receiver. The sound quality of the one station project receiver was much improved over the generally dated equipment used in the past by Newark teachers and is considered to be a major factor in the increased utilization apparent in the study.

-- In a comparison of main channel versus subchannel in the post-project assessment, technical problems occurring early in the project were noted by three of 58 responding teachers. This number is insignificant. The comparative results support the hypothesis that given adequate engineering guidance and support, SCA delivers acceptable audio signals of a quality indiscernible from main channel transmissions. The technical problems that did exist early in the project were due to defective monitors and were rapidly alleviated. (Installation of SCA monitoring equipment was implemented by G.A. Gilbreath, Engineering Consultant, who returned to Newark to make adjustments to defective monitors which were subsequently returned to the manufacturer and repaired).

AUTHOR'S REMARKS:

In the pre-project negotiations and planning with the Newark Board of Education, SCA was presented as a potential communications tool for use by the Administration in conveying information to principals, thus assuring immediacy and avoiding the expense and time delays associated with school inter-office mail. This utilization of the SCA was not realized during the project due to time constraints and political turmoil within the school administration.

SCA has been proven a suitable delivery system through its widespread use for the blind, but does have inherent restraints which are noted in the recommendations section of this report. This project was not

(Author's Remarks Continued)

intended to provide a highly detailed study of SCA reception, but several engineering observations must be reported. Although WBGO personnel controlled subchannel transmission during the project, G.A. Gilbreath, Engineering Consultant monitored initial transmissions. He reported multipath induced distortion in the South and East schools which was later alleviated.

In a letter to Robert Ottenhoff, Project Director on May 26, 1977, Mr. Gilbreath stated:

"The SCA channel is suitable for educational distribution although not quite the medium as is the main channel." In concluding his Engineering Report, Mr. Gilbreath stated: "In sum the test results indicate that distribution of material via voice on SCA is not materially less effective than main channel. Reception, while perhaps more critical in severe multipath areas, is as good as main channel as far as FM quieting and signal to noise (S/N) are concerned."

"The Educational receiver, however, considerably restricted the reception of the entire SCA bandwidth as transmitted by the station. Perhaps increased awareness on the part of the various manufacturers of this equipment can bring about a superior receiver for expanded usage."

* * * *

The delivery system for audio instruction has a measurable effect upon the level of utilization in both quantity and quality.

The data and conclusions as outlined above support the following hypotheses:

1. The level of utilization of audio instruction, in both frequency and quality will increase when the following conditions exist:
 - a. Equipment is readily available.
 - b. Multiple delivery systems are available.
 - c. Audio instruction is available to the teacher in an unscheduled manner, thereby fulfilling the need for flexibility in the classroom schedule.
 - d. Sound quality is suitable.
2. The frequency of utilization of cassettes will be higher than that of radio in the classroom setting.
3. The differences between the main channel and subchannel radio transmissions of audio instruction are not discernible to the utilizer.

Audio instruction could be dispersed much more widely with the combined delivery systems including main channel, subchannel, and cassette components. It is a given that many teachers want flexibility in scheduling audio instruction while many others can readily integrate a broadcast schedule into their classroom plans. A combination delivery system would allow WBGO to reach a diverse number of educational audiences with a widely expanded number of offerings. The special needs of small groups of exceptional students might be prudently met through cassette or subchannel than main channel transmissions.

QUESTION #2: WHAT ARE THE CRITICAL VARIABLES IN TEACHER UTILIZATION OF AUDIO INSTRUCTION?

It is significant that 100% of the project participants reported that they would incorporate audio instruction into their teaching strategies during the next school year. This strong endorsement of audio instruction is directly attributed to a number of critical variables.

Briefly enumerated, those variables are availability and flexibility of equipment; utilization training; educational benefits of programming; teacher involvement through preparatory and follow-up activities as well as teacher contribution through the questionnaires and interviews, printed material, capacity for individualization with a variety of ability levels; adequate sound quality; and encouragement from principals.

-- Flexibility and availability of equipment are critical variables as was discussed in question #1 and as was evidenced by teachers' commentaries.

-- A well-coordinated and constant program of utilization training and assistance encourages optimum utilization of audio instruction. The seminar which initiated teachers into the project was a vital tool in the project. The immediacy of assistance from Jesse Thomas, Audio Instruction Specialist, further improved responses in the project. 61% (27/44) attended the initial seminar; the remaining 39% (17/44) received a personal initiation into the project by a visit from the Audio Instruction Specialist. Project participants rated the seminars highly in terms of their communication of the objectives of the project, review of programming options, and explanation of equipment. Teachers were asked to respond to the statement, "I felt favorably towards the project at the completion of the seminar." 53% (16/30) "strongly agreed", 40% (12/30) "agreed", and none disagreed.

The seminar was designed to serve as a comprehensive utilization presentation. The subsequent follow-up by the Audio Instruction Specialist was a facet in the role of a utilization specialist. He maintained contact with teachers, assisted with minor problems, and in some cases, offered suggestions for utilization.

-- The educational benefit available through audio instruction is an identifiable variable in the utilization of audio instruction. Project participants rated their value perceptions of the educational benefits of audio instruction higher than did those participants in the pre-project assessment. The high incidence of individualization and preparatory and follow-up activities is attributed, in part, to the introductory seminars that were held for project participants. 74% (29/39) of the post project respondents reported implementation of preparatory activities and 81% (30/37) reported follow-up activities.

-- Printed materials regarding audio instruction made available to teachers enhanced the project. As one of the project participants stated in regards to the lack of public information of WBGO services in the past: "What you don't know can hurt you!"

-- Data from the pre-project assessment indicated that teachers viewed teacher contribution to the development of audio instruction services as important, yet teachers had rarely been afforded the opportunity to offer input. This aspect shall be explored more fully in question #4, yet it is considered to be a critical variable in utilization.

-- The capacity for individualization or small group utilization appears to be a critical variable in the utilization of audio instruction. The project teachers utilized audio instruction in larger numbers than did teachers assessed in the pre-project questionnaire. 36% (27/74) of the project teachers used radio or cassettes with small groups of students grouped by ability and/or interests and with students on an individual basis.

-- The ability of audio instruction to evoke positive responses from a variety of student ability levels is a critical variable in its utilization. Project participants gave varied responses to a question asking what type of pupil(s) best responded to audio instruction. The responses were as follows: 10% (8/78) - the slow learner; 18% (14/78) - the underachiever; 27% (21/78) - the average achiever in academic ability; 15% (12/78) - the above average in academic ability; 3% (2/78) - the academically gifted; 1% (1/78) - the mentally handi-

capped; 0% - the visually handicapped*; 12% (9/78) - all of the above; 14% (11/78) - pupil capability is not a factor. This data gives credence to the concept that audio instruction can be used effectively with broad-based educational audiences with wide-ranging needs.

-- Adequate reception of radio transmissions is a critical variable in the utilization of audio instruction. 98% (36/37) either "strongly agreed" or "agreed" that the sound quality of radio was adequate.

-- Project teachers continue to view the use of audio instruction as supplemental to classroom activities as opposed to an enrichment source or the only source for information in a given area of study. 48% (24/50) of project teachers used audio instruction in a supplemental manner "most of the time", while 14% (7/50) used it "always". Recommendations for mainstreaming audio instruction into the curriculum will be given in Section X of this report. Direct correlation of audio instruction to the school curriculum is a critical variable in its utilization.

-- Encouragement on the part of the principal to utilize audio instruction is viewed as a critical variable in its utilization. The pre-project assessment questionnaire revealed that principal encouragement was the second greatest facilitator to utilization among those who had used audio instruction.

*There were no visually-handicapped students participating in this project; however, it must be noted that instructional and public radio stations have an outstanding record of service with the visually handicapped across the nation.

The data and conclusions as outlined above support the following hypotheses:

1. The level of utilization of audio instruction, in both frequency and quality, will increase when the following conditions exist:
 - a. Training in utilization is presented to teachers.
 - b. Information regarding program offerings is made available.
 - c. A communications link is well established between the audio instruction center and the teacher.
 - d. Teachers, principals, curriculum consultants, and other administrators are involved in the shaping of audio instruction.
 - e. Administrative personnel are openly supportive of audio instruction.
 - f. The educational benefits of audio instruction are evident.
 - g. Software serves the needs of a broad-based educational audience.

QUESTION #3: WHAT ARE THE COST BENEFITS IN THE VARIOUS DELIVERY SYSTEMS
FOR AUDIO INSTRUCTION?

Establishing direct cost comparisons and per-student costs proved to be extremely difficult due to the wide number of variables involved and the inadequate and nonscientific methodology of data collection used to ascertain utilization over the years. However, the following points can be made:

A. Adding SCA Activities To An Already Existing Station Operation

With WBGO-FM already in operation, the project purchased equipment costing approximately \$4200 to activate the SCA channel. The following equipment was purchased*:

Gates SCA Generator	\$ 735.00
UREI Limiter	465.00
TFT SCA Monitor/730	1,283.00
TFT Monitor 763/765	1,700.00
	\$ 4,183.00

In addition the project spent approximately \$1300 for outside engineering fees to install the SCA equipment and to run field tests for this project, a cost that most stations with a full complement of engineers would probably not have to bear.

Personnel employed to operate the main channel equipment, were also assigned to operate the SCA equipment. No additional technical staff or board operators were required. Depending on the complexity of the SCA operation,

*Equipment was purchased because of compatability with the existing equipment (a Gates 5H Transmitter), relative costs, and quality.

most stations should not require additional personnel for SCA technical activities.

Since the station facility was located in a high school, separate power expenses for the station operation are not available for comparison. It is generally assumed, however, that adding the SCA operation does not increase power costs significantly.

The cost, therefore, of activating the SCA channel is relatively insignificant, costing less than \$5000 for new equipment and generally no additional personnel, except for those additional testing and maintenance procedures needed to keep the SCA functioning properly.

The major expense to any SCA operation is the cost of the SCA receivers. The Audio Instruction Project purchased 75 Johnson ER-2 Receivers at a cost of \$65.50 each*. Purchasing the new receivers in a large quantity can be accomplished in several ways. In a large school district such as Newark's replenishment of radio sets is an activity required each year in any case. In fact, as our survey underscored, there is a critical lack of radios in the schools. Therefore, since new radio receivers are so desperately needed anyway, one possibility is for Newark schools to use its annual radio budget to purchase new SCA receivers and gradually phase them into the schools. Much of the school's annual equipment is provided through federally-funded programs for audio visual equipment. In addition, under the recently revised regulations of HEW's Equipment Facilities Program, stations can now apply for funds to purchase SCA receivers.

*The Project's consulting engineer also tested the McMartin Receiver and found it to be of roughly equal quality to the Johnson. The McMartin bid, however, was several dollars higher per receiver, and it was for this reason that the Johnson's were chosen.

B. Cassette Duplication

For this project, an Audio Instructional Specialist was hired to, among other things, coordinate the duplication and distribution of cassettes.

His time for the project can roughly be divided into three areas:

- (a) One day per week was spent on tape duplication.
- (b) Three days per week were spent in the schools, delivering tapes and monitoring the project.
- (c) One day per week was spent in administrative and coordinating activities.

For the project, a high speed duplicator* was purchased, which makes up to five copies of cassettes simultaneously. Due to the high cost, the project did not purchase a high speed duplicator to transfer programs from reel-to-reel to cassettes. Such a machine would have eased the duplication process considerably.

Since the project has ended, Newark Public Radio has expanded the cassette operation to cover the entire school system, with the same Audio Instructional Specialist in charge. Due to the fact most of the programs are now on cassette, it is much easier to fill teachers' orders quickly. The increased demand caused by the system-wide operation has caused some delay in responding to teachers' requests, but generally orders are filled within a week. It is projected that next year part-time employees will be hired to handle the cassette duplication effort thereby permitting the Specialist to spend more time in the schools.

*A Wollensak 2770/2780

For the project, 15 Wollensak 2520 cassette machines were purchased at a cost of \$191 each and 53 Wollensaks 2620 at \$134 each. Surveys have shown that the Newark school system has a reasonable number of cassette machines, purchased through different federal programs, and additional purchases are not contemplated in the near future. Cassettes were purchased for \$.66 each.

It is difficult to extrapolate any further the costs of the cassette duplication and distribution operation. During the project, personnel requirements for cassette duplication and distribution were quite high when one considers the limited number of project participants (60), only 43 of whom utilized audio instruction via cassette. The American Library Association has established as a minimum requirement that there should be one media specialist per every 250 students. The specialist for this project was serving 1300 students.

However, the use of cassettes demonstrated that the frequency of utilization increased, thus supporting the following hypothesis:

"The addition of cassettes as a delivery system for audio instruction will improve the cost effectiveness for a radio broadcast entity due to increased frequency of use and a broadened base of educational audiences which can be reached."

Cost factors for audio instruction depend upon the facilities accessible to an institution. If main channel access exists, the addition of SCA is relatively inexpensive. If an institution does not have access to main channel, but has access to SCA, costs revolve around generating equipment and receivers, as has been successfully proved by commissions

for the blind throughout the country in their utilization of SCA. If an institution has a radio station and a full schedule of programs, a tape operation can be initiated with the purchase of a high-speed duplicator, tape stock, and program acquisition. The distribution of cassettes is but one of many variables in the question of cost comparisons. In the case of the Newark Audio Instruction Project, a definitive answer to the question of cost comparisons has not been generated.

QUESTION #4: WHAT STEPS SHOULD BE TAKEN FOR THE INTEGRATION OF
AUDIO INSTRUCTION INTO THE CURRICULUM?

Teacher involvement in audio instruction is vital to its integration into the curriculum. This involvement is manifested in preparatory and follow-up activities as well as access to an individual who will convey requests, suggestions, and complaints to the audio instruction center. Ideally, for the integration of audio instruction into the curriculum to be achieved, curriculum consultants, administrators, and teachers must be involved in the development and acquisition of audio instruction materials keyed to the specific curriculum needs of the school system.

Other responses to this question constitute a series of recommendations and shall therefore be included in Part X of this report.

X. RECOMMENDATIONS

The fourth and final question raised by this study is, "What steps should be taken for the integration of audio instruction into the curriculum?" The author's recommendations follow based upon the components of an audio instruction service ideally integrated into the educational system which it seeks to serve:

A. Advisory Council

To be a meaningful educational aid to the schools of Newark, the recipients of W8GO's instructional services must be deeply involved in the shaping of those services and commitments. An Advisory Council should be established to steer audio instruction in a direction deemed suitable to meet the needs of the Newark schools. The council should be composed of representatives from the following groups: teachers, principals, curriculum consultants, learning theorists, administrators, parents. In a system as large as Newark, there exists the necessity of area councils feeding into the Advisory Council. To represent the needs and suggestions of students and teachers in individual schools, every school must have a building contact person or coordinator for audio instruction who serves as a member of the area council. Teachers in each school would be instructed to convey their concerns regarding audio instruction to the building coordinator who in turn would present them to the area council, whose chairperson would relate a compendium of area concerns to the Advisory Council.

It is recommended that the librarian/media specialist be given preference as the building coordinator for audio instruction. The role of the librarian

is rapidly becoming that of the media specialist with considerably more influence in the total school. The media specialist is an important component in the integration of audio instruction as can be attested to by others in the business of audio instruction.

An in-depth training program should be implemented for building coordinators. These persons should be well-versed in the services, procedures, and offerings of audio instruction. In addition, they should be trained as to effective communications techniques within the school setting, for the building coordinator must serve as a two-way communicator.

The Advisory Council must be a working, contributing force in an audio instruction service. When the council sees its suggestions put into motion, it will come to the realization that the Audio Instruction Advisory Council is vital and not just another token committee that is so often evident in the educational community. In turn, the enthusiasm for support of Newark Public Radio's instructional services will increase dramatically. An audio instruction service must not implement such an advisory system if its intent to follow through is not genuine. Such a system needs active leadership and communication from the Instructional Services Director of Newark Public Radio and like support from the station's management.

B. Utilization Training

The Director of Instructional Services for Newark Public Radio must have on staff a Utilization Coordinator whose responsibility is the design of a system-wide training program for teachers in the effective and efficient

utilization of audio instruction. Area-wide workshops with building coordinators would be a logical beginning, followed up with systematic presentations to individual school faculties. With school systems as large as Newark, perhaps a workshop with two or three school faculties combined would facilitate the rapid dissemination of utilization abilities. In these workshops, teachers would be familiarized with the offerings of audio instruction, from its inherent ability to teach, to previews of the series. Of immense importance is the selling of audio instruction as an integral part of the school curriculum. Schools have been besieged with projects, special programs, title requirements and the like, resulting in teacher reaction to any "new" project with a statement such as, "But I don't have enough time!" Audio instruction must be presented as a means to achieve learning goals.

The Utilization Coordinator must develop strong relationships with the curriculum department of the school system. Basic curriculum goals must be correlated with audio instruction courses and then communicated to teachers. Specific programs should be keyed to specific learning needs. In this way, audio instruction retains its accountability and viability as a learning tool. In a time when budgets in most urban school systems are being pared, audio instruction cannot afford the image of a supplementary or enrichment tool. By avoiding this "frill factor", audio instruction becomes mainstreamed into a school system's curriculum. Once again, this process of becoming integral to school goals cannot be achieved on a surface basis. It must be a sincere and workable effort effected through the careful communication with and

nurturing of curriculum consultants.

Utilization workshops could be presented as a means of staff development to principals. The utilization staff must make a visible contribution to each school staff in the form of providing specific techniques for using a series to confront a specific learning need. Individualization methodology should be explored at every opportunity.

In a philosophy of utilization, it is important to remember that it is a continuous process. Audio instruction must stay in the forefront if it is to capture teacher attention and utilization. Correlations between schools receiving utilization guidance and subsequent increases in the level and quality of utilization have been shown to be positive in Atlanta and South Carolina. However, once this gain is accrued, it cannot be taken for granted. It must be cultivated through the building coordinator and contacts by the utilization coordinator on a follow-up basis. When utilization guidance and contact is diminished or completely withdrawn, gains in utilization will dissipate within three years as has been sadly realized by many a utilization staff. The losses include educational experiences for students, accountability on the part of the audio instruction center, and ultimately, a loss of economic feasibility. Audio instruction is often represented as an inexpensive of dispersing education. Such a claim is not valid if utilization figures are low; yet when utilization is at optimum level, cost factors for audio instruction on a per-pupil basis would be impressive to even the most dubious and penurious budget director.

Beyond staying in the awareness of teachers, audio instruction must be highly visible among administrators. Support among principals, curriculum consultants, and other administrators is a critical influence in the successful integration of audio instruction.

To approach its full educational potential, audio instruction must demonstrate its ability to improve student skills and attitudes, to expand student knowledge, and to assist the teacher in meeting educational needs of students and curriculum guidelines. Utilization workshops and liaisons between the audio instruction center and every school are essential in keeping this communication link alive.

C. Public Information

Public information has traditionally been a term reserved for the dissemination of information related to public radio and television. However, the time has come that audio instruction must plan public information programs to keep in the forefront of the school scene which is traditionally glutted with special projects and programs.

The most important aspect of public information for audio instruction is the development of a catalog outlining schedules, cassette acquisition information, resources, utilization guidelines, equipment acquisition information, and teachers' guides for each audio resource. The guide portion of the catalog should optimally include an overview of the series' objectives, a description of the content of each program, and suggestions for preparation and follow-up activities.

Bibliographies are also desirable where space permits. It is preferable to provide a teacher with as much information and suggestions for use of a series as possible, rather than too little. Suggested grade levels for specific series are a helpful feature which can often be determined through curriculum consultants and the Advisory Council. Another aspect of such a publication that would be helpful in establishing the concept that audio instruction services are indeed responsive to student and teacher needs would be a section outlining the procedure for teacher conveyance of a suggestion or need via the building coordinator and the area council.

Whenever possible, funds should be provided for additional public information campaigns. Posters, flyers, and bookmarks are wise investments, generally offering a great return for the money expended. Free sources of public information should be explored such as appearances of the Director of Audio Instruction on television and radio talk shows. Broadcasting the Superintendent's address and school board meetings further increases the visibility of a radio station providing audio instruction. Promotional spots with teachers and students praising audio instruction are effective.

Traditionally, educators cringe when the word "promotion" is applied to an instructional endeavor. But promotion is necessary to bring audio instruction into the mainstream of a school system. The basics of promotion can often be implemented under the guise of "awareness" activities. Just as utilization is a continuous activity, so is public information. It must keep up with the times and events of a school system and be immediately responsive to informational needs.

D. Evaluation

All proposed program acquisitions should receive evaluations by a large number of students and teachers as well as area councils and the Advisory Council. In this way, the Director of Instruction can ascertain the ability of a particular series to meet the needs and fit the interests of the school population. Curriculum consultants should have the first screening option to determine relevance and compatibility with school system objectives and philosophies.

For local productions, advisory committees should guide the design, incorporating formative evaluation throughout. Students should be used as "sounding boards" for pilot programs to ascertain the success of particular formats, techniques, and vocal characterizations.

E. Production

The issues addressed in this study are paramount to the development of audio instruction in the United States, particularly in the area of production. Production of quality audio instruction is an issue of great concern and interest to educators at all levels and to public broadcasters. The quantity of production from instructional radio stations in the United States has declined over the past fifteen years since the advent of instructional television. Strangely enough, audio instruction is emerging as a vital force internationally, particularly in developing countries. The Nicaraguan Mathematics Project for Radio, a recipient of the Japan Prize, is but one example of the international application of audio instruction.

It should be noted that there is an accompanying decline in the production of local instructional television series in the United States at this time. Stations are looking more to large-scale productions funded by national agencies such as CPB and AIT. Consortia efforts have become commonplace in ITV. The reasons for the decline in local productions in ITV are similar to those in instructional radio. There is a national epidemic of budget cuts in school board stations, and there is a gaining momentum for production of programming for the general public as opposed to the school community.

In the midst of this gloom, there is a renaissance of sorts occurring in instructional radio/audio instruction. State networks, departments of education, school systems, and colleges are discovering or rediscovering audio instruction by virtue of its economic feasibility and its demonstrated effectiveness as a learning tool. If the renaissance of audio instruction is to be kept alive, there must be a national emphasis on the production of quality programming.

In the case of Newark, with its large, multi-faceted school community, localized production assumes an even greater importance. Local productions should be designed and produced in accordance with curriculum needs and objectives, and guided by an advisory committee composed of curriculum specialists, teachers, and learning theorists. The committee should be well-versed in radio production techniques and recent research such as the Nicaraguan research which highlights the success of rapid and frequent student interaction with the audio presentation.

Formative evaluation should become a major force in the production process. If research support can be obtained from the educational system, it should be utilized to the maximum. Formative research not only guides the designers and producers, it justifies the appropriation of funds, personnel and time. It provides a positive answer to the eternal question, "But, does it work?"

The dearth of quality programming for audio instruction emphasizes the need for production at Newark Public Radio. A Production Coordinator should be employed to oversee all aspects of production. A producer should be available on staff to research and write all scripts. A director/recording engineer should be devoted to the actual production process including casting, directing, recording, mixing, and editing. The production staff should have an extensive knowledge of production techniques in audio instruction in the past as well as the present and the future. They should be expected to visit classrooms and observe student reactions to production techniques. And above all, they should be expected to produce audio instruction of impeccable quality!

F. Equipment Services

Newark Public Radio must assume a role in leading the way to increased funding for the provision of equipment for audio instruction. Matching funds provide an excellent incentive for equipment acquisition as has been evidenced by the South Carolina Instructional Radio Network (a service of the S.C. Department of Education and the S.C. ETV and Radio Network.)

All programs of mediated instruction are confronted with the issue of maintenance of equipment. Newark Public Radio must develop a system for the prompt and effective repair and/or replacement of equipment for schools. One of the project principals complained that he'd sent a radio in for repair a year ago and had yet to receive it in return.

If WBGO expands its cassette service, a duplication system with built-in quality control must be established. A prompt delivery system must be implemented. Immediacy is of utmost importance to teachers. When immediacy is not evident, neither is utilization of the service.

Additionally, Newark Public Radio should lead the way for field testing of all equipment. Many are the schools which have purchased cheap cassette playback machines and radios only to realize that they were inefficient for classroom use. Newark Public Radio should establish specifications which take classroom acoustics into consideration as well as utilization methods, particularly small group listening with headphones. All equipment should have a headphone jack.

Equipment involved in main channel and subchannel transmission and cassette duplication must be subjected to routine preventative maintenance. Personnel operating said equipment must be committed to quality control, thereby assuring the highest quality of transmission. Whenever reception difficulties exist beyond the studios, field technical services should be provided by engineering.

Author's Remarks:

The multi-delivery system of audio instruction in the Newark Project is considered to be the major factor behind the fact that 100% of project participants said that they would utilize audio instruction next year. This high rate of "return" is due to different delivery systems serving different needs, preferences, and characteristics of teachers and learners.

Although sample contamination was surmised by an analysis of the subsample data, it must be noted that the positive responses to the value judgements in the pre-project sample cannot be dismissed. Several researchers (Chu and Schramm, Forsythe, Skornia) have documented radio's (audio's) ability to teach. Surveys of teachers in Atlanta, South Carolina, Portland, Madison, Flint, Chicago, and Minneapolis have shown positive evaluations of instructional radio's role in the improvement of student skills and attitudes, ability to maintain student interest, and its ease of integration into classroom activities. There is a high degree of commonality of programming among the aforementioned locations, and much of this nationally distributed material coming through NPR is broadcast over WBGO/Newark Public Radio.

The question of cost comparisors can be addressed from many points of view. For those who advocate that main channel broadcasts be used exclusively for public radio for the general public, their concern is that an "educational" audience is not substantially broad-based. The potential audience for educational programming from Newark Public Radio is vast.

The Newark Audio Instruction Project has demonstrated, albeit on a small level, that audio instruction, when presented and administered in a manner that promotes optimal utilization, has a vast potential audience which considers audio instruction as complementary to instructional efforts, and thus community efforts.

Newark Public Radio should serve the Newark community by the best means at hand. Those instructional programs which would have the widest audience application should be transmitted over the main channel. For example, a series dealing with pre-reading skills could be used by schools, day-care centers, and parents at home with their pre-schoolers. On the other hand, programming designed for a small, specialized audience in controlled situations would be ideal for subchannel transmission or cassette distribution. An example would be programs designed for behavioral disorders. Occasionally the general public should be made aware of these specialized services by airing selected programs over the main channel. Such a procedure would further enlighten the community as to the wide-ranging services of Newark Public Radio, and thus serve as an effective public information procedure.

Although the subchannel is endorsed in this report as a delivery system for audio instruction, several precautions must be mentioned for those eager to activate their latent SCA's. Many a novice has turned on the subchannel and encountered distortion and crosstalk. SCA is not novice territory. It requires a professional engineering staff well-trained in the nature of the subchannel at the control site and the transmitter site. Several characteristics of SCA not widely known are enumerated below:

1. Implementation of a subchannel reduces a station's broadcast power by 10% and thus its range.
2. SCA has a narrow range of dynamics similar to speech range; this combined with a 5 kilohertz frequency response results in musical transmissions that are of lesser quality than regular FM main channel transmission.
3. AM radio stations do not have the capacity for implementation of SCA inherent in FM stations.

The successful introduction of the cassette in audio instruction indicates that future demands for tape duplication will dramatically increase. If an effective and efficient organization for cassette duplication and distribution cannot be implemented, it can be predicted that interest in audio instruction will diminish considerably. It is true that tape availability was immediate during this project, but a taping center subject to the demands of an entire school system would most certainly lose its immediacy if it were not provided adequate equipment and personnel.

The question becomes even more involved when one considers the number of school systems within range of Newark Public Radio, Inc. Would tape services be made available for Newark Public Schools only? If additional school systems chose to subscribe to tape services, these subscription funds could be used to defray taping costs.

Audio instruction has a future in Newark, a bright future if there is a response to the interest and excitement generated by the Audio Instruction Project. The Newark Public Schools are schools caught up in the urban crisis of the 70's and Newark Public Radio can make a significant contribution to its community if it makes a real, long-range commitment to audio instruction.

Newark Public Radio, Inc. should include an instructional division staffed with knowledgeable professionals well-versed in audio instruction.

Newark Public Radio, Inc. is saluted for its valiant efforts to bring New Jersey its first public radio station. Its current commitment to audio instruction is evidenced by the agreements with the Newark Board of Education which include 25 hours of main channel transmission of education/instruction per school week and the establishment of a joint committee to review educational commitments and directions.

Newark Public Radio, Inc. and CPB have made a substantial investment in the future of New Jersey - its young people. Newark Public Radio is encouraged to open the umbrella of public radio to bring the best of instruction, public affairs from the New Jersey point of view, cultural programming, and education for audiences beyond K-12 to its ready populus. Newark Public Radio holds the promise many public radio stations would envy. Through multi-delivery systems, Newark Public Radio could boast the most extensive audio instruction in the nation, while still serving the several audiences that make up the many faces of Newark and New Jersey.

XI. SUGGESTIONS FOR FUTURE RESEARCH

The extremely tight time frame in which this study was implemented prevented exploration into other areas of study deemed worthy for audio instruction. It is recommended that future studies be implemented to further ascertain the intrinsic features of audio instruction. Specific recommendations are as follows:

- A. A series of studies should be launched regarding the efficiency and effectiveness of audio instruction in terms of learning gains and economics. Much of the research along these lines is quite dated. New research data as it impinges upon an age of visual dominance would be most valuable.
- B. The effectiveness of presentation of various kinds of subject matter via audio would make for a worthy study. Art has largely been shunted to the visual media in spite of Wisconsin's success story with art via radio. The ability of audio to stimulate the imagination needs to be applied to a study of academic disciplines and their particular suitabilities for presentation in audio.
- C. A correlation between the kinds of material presented in audio form and learner characteristics would be of immense assistance for designers of mediated instruction. This study showed a broad range of opinions as to the ability groups most successfully served by audio instruction.
- D. SCA needs further research, particularly regarding the factors contributing to reception.

- E. A study on the utilization of cassettes would be valuable, particularly regarding how they are used and what limitations are inherent.
- F. A study of teacher characteristics as they influence media selection (i.e., choice of audio delivery system) would be of further interest.
- G. This study showed that audio instruction was overwhelmingly viewed as "supplemental". A future study could provide a model for making audio instruction an integral part of a school system's curricular program.
- H. A study on design procedures for audio instruction would be a valuable teaching tool. Such a study could incorporate formative evaluation and predictably boost its acceptance among producers and designers of audio instruction.

Research takes a substantial amount of time to implement. It is recommended that the national agencies involved in audio instruction devote strong consideration to research in the area of audio instruction. All indications are that audio is going to become a strong contender in the media world. The educational broadcasting industry should take heed of future trends and needs and be prepared to meet the challenge.

A PROPOSAL TO STUDY ALTERNATIVE DELIVERY SYSTEMS
FOR INSTRUCTIONAL AUDIO PROGRAMMING

Prepared by:

Robert G. Ottenhoff
Office of Newark Studies
Newark, N. J. 07102

December 15, 1976

TABLE OF CONTENTS

I. INTRODUCTION

- A. Statement of Purpose and Goals
- B. Summary Description of the Project

II. PLAN OF ACTION

- A. Pre-Testing and Evaluations
- B. Program Review Seminars
- C. Project Seminars
- D. The Testing
 - 1. February through April: Main channel and audio cassette
 - 2. April through June: Main channel, SCA and audio cassettes
- E. Post-Testing, Evaluation and Review Sessions

III. DESCRIPTION OF PROJECT ELEMENTS

- A. Project Participants
- B. Schools Participating in the Project
- C. Equipment Needed for the Project
 - 1. SCA related
 - 2. Cassette related
- D. Project Budget
- E. Proposed Programs to be Used in Project
- F. Project Evaluation and Survey Forms

IV. REVIEW OF LITERATURE

A. SCA

B. Audio Cassettes

C. The Value of Instructional Programming and Hindrances to
Greater Utilization

The following proposal was prepared by the Office of Newark Studies, Newark, New Jersey, with funds provided under an Engineering Research Agreement from the Corporation for Public Broadcasting, CPB Account No. 7883. A copy of the agreement is attached to this proposal.

ACKNOWLEDGEMENTS

This proposal could not have been prepared without the cooperation and assistance of a great number of people. To name them all would be impossible, but among those for whom a special thanks is necessary include:

Stanley Taylor, Executive Superintendent of the Newark Public Schools, for his strong interest and cooperation.

Carl Dawson, President of the School Board, and Helen Fullilove, Chairperson of the Board Instruction Committee, who have been equally supportive and interested in the goals of the project.

E. Alma Flagg, Rhoda Appel and Marie Scanlon of the Board staff, who have provided invaluable information about the school system.

Richard Roper, Director of the Office of Newark Studies, for his encouragement and direction.

Robert G. Ottenhoff

I. INTRODUCTION

A. Statement of Purpose and Goals

This proposal will outline an experiment designed to generate accurate information and useful experiences on a range of delivery systems for audio instructional programming for elementary and secondary schools. Specifically the proposal will address itself to three major objectives: (1) to determine the cost benefits, utilization and efficiency factors in using FM main channel, the FM subchannel, the school intercom system and audio cassettes for delivery of instructional programming, (2) to evaluate the data generated by this study in terms of its cost, efficiency and utilization, and (3) to develop a master plan for integrating this radio/audio instruction into the media curriculum program of the Newark public school system.

B. Summary Description of the Project

We propose to undertake a five month study, from February through June of 1977 of audio instruction in a select number of elementary and secondary schools in the Newark public school system. Four primary methods of distribution will be used for the audio instruction:

- 1) Main channel broadcast will be available in some classrooms;
- 2) SCA or subchannel broadcast will be offered in some classrooms;
- 3) Audio cassettes will be available to some teachers and will be distributed from the school system's central audio-visual department;
- 4) And finally, in some schools an SCA receiver will be placed in the

principal's offices and programs will be distributed by the school's intercom system.

Additionally, all schools participating in the project will have an SCA receiver placed in the principal's office in order to test the possibility of using SCA for disseminating information between the central administrative offices and the schools.

The technical assessment of the project will be done by the Project staff with some assistance from Gale Gilbreath of G.A. Gilbreath Associates of Columbus, Ohio. The technical assessment will include a close monitoring of all delivery modes in order to determine operating costs, equipment costs and repairs, audio quality and ease of operation.

Teachers and administrators, and in some cases students, will be asked to prepare several evaluatory forms. An initial pre-project survey will be circulated in late January to determine existing audio programming utilization, opinions and experiences. During the project teachers and administrators will be given monthly review forms on programs and utilization. Several teachers selected at random will be asked to complete more detailed surveys. After the project, teachers students and administrators will be asked to complete a major survey which will among other things measure the effectiveness, the amount, and ease of utilization of each distribution mode.

Programming will come from two sources. The program schedule for the main channel has already been selected and printed programs guides were

distributed to teachers in October. Approximately five of the programs used on the main channel will be used for SCA and cassette. In addition, approximately 5 to 10 other programs, distributed by National Public Radio, will be available on SCA and cassette.

To insure quality programming, a committee of teachers, administrators and students will be asked to review these additional programs before they are used in the project. A final report of the project should be ready for review by the end of July 1977.

We estimate the project will cost approximately \$45,000 to undertake. The staff will include a Project Director at 1/5 time, a Project Coordinator at full time and two part-time staff members. Secretarial and office support will be provided by the Office of Newark Studies. A large portion of the budget will be dedicated to equipment costs. Since the station is presently not equipped to operate SCA, it will be necessary to install SCA transmission and monitoring equipment, at an approximate cost of \$5,000. The remaining equipment budget will be used primarily for purchasing SCA receivers, audio cassette playback machines, a reel to reel master and a cassette duplicating slave. An outside consultant will be retained for preproject guidance and post-project evaluation.

The Context in Which this Project is Being Undertaken

This project is being undertaken during a time when considerable nationwide attention is being given to upgrading public radio services and increasing audience sizes by offering a broad range of quality cultural and informational

programming. School licensees on the other hand have primarily been interested in offering instructional programming to a very specific school population audience. Over the last few years it has become increasingly difficult, with the limited radio resources available, to satisfy both the growing programming needs of the general audience and the specific instructional needs of the school system. This proposal is primarily designed to explore the possibility that new technologies currently available may be utilized in order to meet the program needs of all groups while, in addition, expanding teacher and student access to quality programming.

First it might be helpful to state what this project is not going to do. This project is not designed to question the value and effectiveness of instructional programming. There is considerable literature available which demonstrates that audio instruction can be a beneficial method of enriching classroom instruction. As our review of literature later in this proposal shows, audio instruction has been found to increase test scores and learning skills in a variety of educational situations. The subject before us therefore will not be what instructional programming can do, or if there should be any, but what is the best method for distributing this programming to the classroom to encourage optimum utilization and cost benefit.

Newark, New Jersey offers an ideal setting for a study of this nature since its current radio station situation in many respects represents a microcosm of events occurring across the country. The Newark public school

system has owned and operated an FM radio station since 1948. Throughout its history it has generally been on the air about 35 hours a week -- from the opening to the closing school bells -- on school days only, offering instructional programming to Newark elementary and secondary schools. Attempts to expand the station's broadcast day have usually been defeated by a lack of funds, and over the years the station has, in fact, suffered some reduction in its operating budget and staff. It has been difficult for the School Board to justify allocating scarce school system dollars for expansion of the station to permit non-instructional programming.

Although Newark is bombarded with radio signals -- there are over 80 AM and FM stations in the New York metropolitan area -- there are few stations (and no CFB-qualified public station) attempting to serve the listening needs of the greater Newark area. The public school station -- with a 20 Kw signal currently reaching an estimated 12 million people -- seemed an excellent vehicle for introducing top quality public radio services.

In October 1975 the Office of Newark Studies received a planning grant to study ways to expand the station. After months of study and review of several different proposals, the School Board decided in August of 1976 to participate in the formation of a new non-profit corporation to operate and develop an expanded 18 hour a day public radio station. As of this writing the final discussions for the license transfer to the new corporation are taking place. Participating with the School Board in the new corporation will

be representatives from each of the four colleges located in Newark,* one representative each from the business community and the Mayor's office and six representatives from community organizations.

Newark's unique radio development has permitted the establishment of a link between the future public programming and the past school service. As part of the transfer the new corporation has agreed at the request of the School Board to continue some level of instructional programming. The project being proposed here will be one of the determining factors in a future plan for the delivery of quality instructional materials to Newark schools.

The second section of this paper is a description of the Plan of Action for the project. The third section is a review of the various project elements, including a description of the equipment and programs which will be used, a list of schools that will participate and the evaluatory materials which will be used. The fourth and final section is a review of the literature on SCA, audio cassettes and the effectiveness of audio programming.

* Rutgers University - Newark
College of Medicine and Dentistry of New Jersey
New Jersey Institute of Technology
Essex County Community College

II: THE PLAN OF ACTION

A. Process and Utilization

Of course, all of our plans for using new technologies and methods are worthless if there is no interest in using the programs. Utilization is the key. The most creative, exciting and effective programs in the world are pointless if teachers and administrators won't use them and students won't enjoy them and listen to them.

Much of the literature on audio utilization underscores the importance of the process involved in developing programming and the long range significance of prebroadcast activities. Although we are cognizant of these important phases (the appendix includes a review of some of the major points), program development will not be a major concern of this study. Because of the limits of time and money, we will rely entirely on preproduced programming already available for our testing. Although this limitation is an important factor, it should not have a serious effect on the study.

B. Pre-Test Program Selections

Although we are not in a position in this project to design and produce programs, there are some elements of the prebroadcast evaluation that we can undertake.

We propose that before the project activity begins several seminars be held during which a committee of administrators, teachers and students can be introduced to a variety of possible programs. This effort is a key to the success of the project, we believe. The involvement of these people is paramount if the project is to

offer quality programming that is relevant and of interest to those who must use it. During the program seminar approximately 15 programs and accompanying written materials will be presented to the committee for their evaluation. Participants will be asked to review programs and written materials for a variety of elements including subject content, style and presentation techniques, technical quality, quality of written support materials, length, and age level. The suggested questionnaire is found in a following section.

Participants will be chosen with the assistance of the Superintendent and his staff. We would suggest the committee include several key curriculum staff members as well as principals, teachers and students from different sections of the City, with varying experiences with audio programming. Committee sessions should be divided between elementary and secondary levels. Audio cassette recorders and tapes of each program will be available to those participants who wish to take materials home for extra review.

Because these seminars will require the participants to remain after school and devote several hours to each session, we recommend that participants receive a stipend of \$10 per session.

Some preselection of programs will be necessary of course to insure professional and technical quality. This process will be undertaken by the project director and some members of the existing radio staff.

C. Pre-Project Seminars

We suggest that before the project begins a series of seminars be held for administrators and teachers to familiarize them with the goals of this project. In part these sessions will be needed to counter preconceived notions they might

have developed about one particular type of instructional programming. More importantly it will be a good opportunity to get these people involved and excited about the project and what the benefits of audio programming are. At this session the new programming can be introduced and the new equipment which will be used in the project can be demonstrated.

By putting the teachers and administrators "in touch" with the audio programming staff and familiarizing them with the equipment and programming before the project begins we can iron out many of the "bugs" before we start in February.

It is hoped that union and administrative procedures will permit these seminars to be held immediately after school. If not, some written or audio presentation should be undertaken for the schools involved in the project.

D. Pre-Project Survey

Before the project begins an accurate survey of existing utilization must also be conducted. Currently the radio station conducts one survey at the end of each school year to assess program interest and utilization. The assessment is usually prepared for the entire school building by an administrator.

For this project a more detailed survey will be necessary (as will, of course, periodic review during the course of the project) to develop a base line from which to measure any changes that may occur as a result of the project. Most of the pretest will be designed to assess current levels of audio programming, utilization and teacher participation. We will also be interested in learning what impressions and ideas the teachers have about audio programming.

Survey forms will be distributed to administrators, teachers and students.

An outline of the survey is included in a later section of this proposal.

Undoubtedly, many of the administrators and teachers will expect the audio programming and distribution to be of a certain nature because of their past experiences with the radio station WBGO. We will select teacher and school samples that include those with considerable experience with audio instruction and those with little or none at all.

E. Assessing the Programs and Technology

The actual testing will be divided into two parts. This division has been created because of the unavailability of the SCA at the beginning of the project.

At present all station equipment is monoaural and the station is not authorized to operate the SCA channel. As part of the license transfer the new radio corporation will request authorization to activate the SCA subchannels. This authorization may not be granted until February or March, well into the beginning of the second semester of our project period. While awaiting SCA authorization it will also be necessary to assess the quality of the existing antenna and related equipment to determine its adaptability to SCA. Since the existing equipment is monoaural, more adjustments may have to be made to the transmitter and antenna to bring them up to adequate standards. Hopefully, equipment will be ready for installation immediately following SCA authorization. This

delay in use of the SCA will force us to adopt a two-step process for this study.

1. Step One

During Step One we will test the main channel and the audio cassettes. The main channel will be tested in two ways: 1) the traditional over-the-air broadcast of programming direct to each classroom equipped with an FM radio and 2) broadcasting over-the-air to each principal's office where programming will be to each classroom via the school's intercom system.

The audio cassettes will be used in the following way: -

- A central duplicating facility or the production center will distribute programs to teachers who request them. Distribution will take place either by a special courier system developed and operated by the Project, or if possible through normal school mail or courier system methods. By using this system for cassette distribution we will permit maximum flexibility for the teacher, while allowing the school system to produce cassettes only on the basis of need and retain precise utilization records.

We propose that the main channel and the taped cassette methodologies be tested simultaneously. Since next semester's main channel broadcast schedule has already been printed and distributed to schools, few changes, if any, can be made in it. The programs broadcast over the main channel which have been produced by WBGO and which we would like to include

for SCA and cassette in the study are listed in another section.

For the audio cassettes we propose offering these same main channel programs as well as several others which will be chosen by the program selection committee. Teachers will be given a program handbook of all programs available on the main channel and the audio cassettes and will be able to choose any they wish. Part of the evaluation will be to monitor which delivery mode teachers choose and to assess their reasons for doing so.

The main channel/audio cassette equipment test will be run from mid-February through April 1st, a total of six weeks.

2. Step Two

By early April we should be able to activate the SCA channel and add this option to the already existing distribution methods. SCA will be used in three ways:

- 1) In some project schools SCA will be broadcast to test classrooms, each of which will be equipped with a special receiver capable of receiving both the SCA and the main channel signals.

- 2) In some project schools an SCA receiver will only be placed in the principals' office and the programs will be distributed via intercom of a type which permits independent control by the classroom teacher.

- 3) In all participating schools SCA will also be used for disseminating communications between the central administrative offices and the principal's

office. We hope here to find out whether the SCA can be used as an effective method for circulating information, notices, etc., which are currently distributed by mail or telephone. For example, the Executive Superintendent frequently has emergency or meeting information that needs to be disseminated to principals immediately. At present the most common method for distributing this information is by telephone, often by "chain phone", whereby each principal is charged with informing another principal of the message. SCA would permit immediate contact with all principals and allow for questions and feedback.

Because of the flexible nature of SCA, each program will be repeated at least four or five times weekly and hopefully more than once on the first day of broadcast. The programs offered on the SCA channel will be those WBGO programs available on the main channel plus those additional programs which the program selection committee will choose. These additional programs, as we have said, will also be available on audio cassette.

F. Surveys, Evaluations and Review Sessions

Each participating principal and teacher will be asked to fill out a monthly evaluation form. We believe a monthly form is necessary in order to receive a clear and accurate picture of opinions, reactions, utilization, technical quality and the methods of distribution. An attempt has been made to keep the forms as short as possible to encourage sufficient

participation while still providing us with necessary information and data.

Because more detailed information might be helpful, we propose to ask school teachers and administrators on a random basis to complete a more detailed survey. On the average each teacher or administrator might be asked to fill out this form once or twice during the course of the project.

At the end of the project all participating students, teachers and administrators will be asked to complete a detailed evaluation form.*

Post-project evaluation will be conducted by the Project Director and Coordinator, the technical advisor, Gale Gilbreath and a special consultant, as yet undetermined, who will be especially important in providing an independent, objective opinion of the distribution utilization.

TEACHER UTILIZATION

For testing purposes we will divide the teachers participating in the project into two categories: those with previous experience and those with no experience. Both teacher categories will be further divided into two groups in order to measure and compare the four distribution methods and utilization factors. A rough chart of the testing process is found on the next page.

* An outline of the final survey is found later in this document.

TEACHER₁ SUBGROUP A B	STEP 1 Dist. System Alternatives A & D & B B & D	STEP 2 Dist. System Alternatives A & D & C A C D C & D
TEACHER₂ SUBGROUP A B	STEP 1 Dist. System Alternatives A & D & B B & D	STEP 2 Dist. System Alternatives A & D & C C & D

Definitions:

Teacher₁ - those with previous experience

Teacher₂ - those with no previous experience

A - intercom

B - main channel

C - SCA

D - audio cassette

INTEGRATION INTO MEDIA CURRICULUM
OF SCHOOL SYSTEM

Throughout the design of this proposal we have been aware of the need for weaving this project into the existing media curriculum plan of the Newark school system. We are not interested in devising new plans for projects that already work or adding another layer of bureaucracy.

To a large degree, this project will help to shape the future Newark curriculum plans. As part of the transfer agreement, Newark Public Radio, Inc. is committed to continue instructional programming for the Newark schools. The new corporation will need strong and continued links with the school system to insure that relevant and needed materials are produced. Among some of those links are:

1. The strong interest and support of the Executive Superintendent for the Audio Instruction Project
2. The fact that three School Board members will serve as Trustees on the new corporation.
3. The fact the Board is committed to a first year appropriation of \$150,000 to the new corporation in return for instructional services.
4. As part of the transfer agreement, a joint Educational Committee is being established by the Board and the new corporation to initiate, review and support instructional programming.

III. PROJECT ELEMENTS INCLUDED IN PROJECT

A. Project Participants

The Director of the Instructional Programming Project will be Robert. G. Ottenhoff, a staff member of the Office of Newark Studies. Mr. Ottenhoff has been the Project Director of the planning effort to develop WBGO-FM into a full-time station and has administered the planning grant awarded by the Corporation for Public Broadcasting to the Office of Newark Studies to undertake the expansion project.

The joint recipients of the Project grant will be Newark Public Radio, Inc., the anticipated licensee of WBGO-FM and the Newark Public School System.

The Executive Superintendent of the school system, Stanley Taylor, will be the general project coordinator for the school system.

Members of the school system's professional staff will be assigned to coordinate and carry out the school system's responsibilities.

The project will also report periodically to Carl Dawson, the President of the School Board, and Helen Fullilove, Chairperson of the Board's Instruction committee.

The other recipient will be Newark Public Radio, Inc., a non-profit tax-exempt community corporation which has been formed to own and operate the expanded public radio station. At this point the corporation has five trustees: one trustee chosen by the Mayor, one

by the Chamber of Commerce and three School Board members. After the license transfer has been approved by the Federal Communications Commission, ten more trustees will be added, one each from the four colleges located in Newark and six community representatives.

The fiscal agent of the Project will be Newark Public Radio, Inc. The Chairperson of the corporation is Ms. Helen Fullilove; Secretary-Treasurer is Richard W. Roper.

Currently staff work for the new corporation is being provided by the Office of Newark Studies. It is expected that full time permanent staff will be hired after the approval of the license transfer.

In addition to the part-time services of Mr. Ottenhoff, it is anticipated that one full time and two part-time staff members will need to be recruited for this project. The full time member will act as Project Coordinator under the direction of Mr. Ottenhoff as Project Director. The Project Coordinator's duties will include general coordination of seminars for administrators and teachers, day-to-day technical and programmatical implementation of the project, liaison with the Superintendent's office and professional school staff, coordinator of evaluations and tests, and supervisor of part-time staff members.

The part-time members would work approximately 20 hours per week. One would be responsible for all aspects of the audio cassette portion

of the project, including duplication, coordination of requests and distribution.

The second part-time worker could act as a "trouble-shooter". He or she would be responsible for making sure each school had proper equipment, that all equipment was functioning properly, that teachers had proper materials and that all SCA-related materials were adequately coordinated.

In addition we anticipate hiring a consultant to assist in designing the project and preparing much of the post project analysis and evaluation.

In a later section we will discuss the costs of personnel and operation.

B. Schools Selected for Participation in the Project

A total of sixteen schools have been selected to participate in the project: eleven elementary schools, three middle schools and two high schools. The total number of classrooms in the project will be sixty nine: 45 in grades 2 through 6, 14 in grades 7 and 8 and 10 in grades 9 through 12. Listed below are the participating schools and a short description of each one. Schools have a majority black population except where indicated. Participating grades are listed in parentheses.

Elementary

1. 13th Avenue -- grades pre-K-8th; 1870 pupils; West Ward; Kearney, Assistant Executive Supt. In a new building, with a good library. This will be one of three schools using the intercom for distribution. (Three sixth grade and two seventh grade classes will participate.)
2. Mt. Vernon -- 947 pupils; West Ward; W. Brown, Assist. Exec. Supt. Has white majority, very ethnic. This will be the second intercom school. (Three third grade and two fifth grade classes will participate.)
3. Clinton Avenue -- grades pre-K-4th; 536 pupils; South Ward; Kearney, Assist. Exec. Supt. In a new building, has a good intercom. This is the third intercom school. (Three second grade and two fourth grades.)

4. Ann Street -- grades K-8th; 1051 pupils; East Ward; Flagg,
Assist. Exec. Supt. Spanish and Portugues element. Very old
building. (Two third and two second grades.)
5. S. 17th Street -- grades K-8th; 1496 pupils; Central Ward;
R. Brown, Assist. Exec. Supt. Old building. (Two third and two
fourth grades.)
6. South Street -- grades K-5th; 507 pupils; East Ward; David,
Assist. Exec. Supt. Predominantly Spanish-speaking. In old
building. (Two fifth and two fourth grades.)
7. Lafayette -- K-8th; 1143 pupils; East Ward; David, Assist.
Exec. Supt. Portuguese majority. Old building. (Two fifth and two
sixth.)
8. Elliot Street -- grades K-8th; 911 pupils; North Ward;
W. Brown, Assist. Exec. Supt. Italian and Spanish speaking.
(Two fourth and two sixth grades.)
9. Warren -- 460 pupils, Central Ward; Flagg,
Assist. Exec. Supt. (Two fourth and two fifth grades.)
10. Avon -- 839 pupils; Central Ward; R.
Brown, Assist. Exec. Supt. (Two fifth and two sixth grades.)
11. Maple Annex -- grades 2nd-3rd; 444 pupils; South Ward;
W. Brown, Assist. Exec. Supt. (Two second and two third grades.)

Middle - (Two seventh and two eighth grades from each school.)

1. Camden Middle -- grades 5th-8th; 1233 pupils; Flagg, Assist.

Exec. Supt. New building with lots of equipment.

2. 7th Avenue -- grades 7th-9th; 607 pupils; Kearney, Assist.

Exec. Supt. Large Spanish-speaking population. In an old building.

High School - (A total of ten high school classrooms will participate.)

1. Central -- 1091 pupils; R. Brown, Assist.

Exec. Supt.

2. Science High -- 149 pupils; Flagg, Assist.

Exec. Supt.

Note: Under the Newark school system's organizational structure, each school is assigned to one of five Assistant Executive Superintendents. Newark is also divided politically into five wards. We have attempted to achieve a representative sample of these categories in our selection.

C. Equipment Needed for the Project

WBGO is currently broadcasting monaurally and is not licensed to operate its SCA channels. SCA activation will be requested as part of the license transfer.

WBGO uses a Gates 5-H FM transmitter installed in July, 1969. The antenna is a four bay horizontally polarized Jam-Pro JA 4-FM installed July, 1962.

The following list of equipment needed to activate the SCA channel and provide the audio cassettes has been prepared by Gale Gilbreath of G. A. Gilbreath Associates of Columbus, Ohio. Since a final decision on the SCA receiver to be used in this project has not been made, both have been listed. As you will note, cost estimates are unit prices and do not include bid and quantity discounts.

The equipment needed for this project will be purchased by Newark Public Radio, Inc. in a competitive bidding process. Newark Public Radio, Inc. will keep title to the SCA monitoring equipment. The corporation will be in charge of all equipment during the length of the project but will give title of the SCA receivers, tape duplicating machines and tape recorders to the Board of Education at the end of the project.

A. SCA Receivers

Two SCA receivers were tested for this project:

1. Johnson Model ER-2 at \$85.00 each
2. McMartin Model TR-E5 at \$69.00 each

The tuners are fix-tuned and able to receive both the FM and the SCA signal.

In some instances it may be necessary to attach outside antennae to the receivers. We have selected Johnson Model YJ-3 at \$9.50 each.

If this antenna is needed, an installation tool will be required. The cost of a Johnson Model AD-1 antenna director is \$275.00.

B. SCA Activation

1. Sca generator, Mosely Model SC6-8-... \$ 665.00
2. Limiter, Thompson Model 4110 (150 us) 995.00
3. Monitor, FM; TFT Model 723 2250.00
4. Monitor, SCA; TFT Model 730 1350.00

C. Cassette Play-back Machine

1. Individual reproduce machine, Wollensak Model 2520 AV
at \$210.00 each.
2. (optional) External Speaker, Wollensak Model 25005 at
\$62.00 each.

D. Cassette Duplication Equipment

1. Reel-to-reel master, Infonics Model 212 \$2495.00
2. Cassette slave (x4), Infonics Model 352 3683.00
3. Cassette stock - Scotch Bulk Cassette (SBC)
C-30 /30 min. \$0.54 each in lots of 1000

NOTES:

1. In all three systems it is assumed that the existing facilities will provide the production center for all programming.
2. The SCA system will require installation and check-out time and materials for activation of the SCA. A final proof of performance is highly recommended.
3. SCA reception is subject to multipath interference to a greater degree than main channel FM. It may be necessary to provide antenna and/or antenna system for those schools disadvantageously located. This will require additional feed-line, hangers, splitters and the like not included in this phase of estimates.
4. The modification to the SCA receivers to enable them to receive only SCA or main Channel is a minor operation requiring only a soldering iron and a few minutes time.
5. All prices, except for cassette stock, are unit prices subject to both bid and quantity shrinkage.

D. Cost Estimates for Project

Personnel

Project Director (1/5 time)	3,200
Project Coordinator (full time)	7,500
2 Part-Time (1/2 time)	6,000
Consultants	5,000
Program Seminars	<u>300</u>
SUBTOTAL	\$22,000

Secretarial and Office Expenses, Telephone, Typing and Duplication	1,000
---	-------

Equipment

SCA Activation	5,260
75 SCA receivers at 69.00 each	5,175
Reel-to-Reel Master	2,495
Cassette slave	3,673
30 Wollensak cassette machinew 15 @ \$198 = \$2,970 15 @ \$130 = \$1,950	4,920
1,000 Cassettes at \$.54 ea,*	<u>540</u>
SUBTOTAL HARDWARE	\$22,073
GRAND TOTAL	\$45,073

*One potential bidder has indicated his price for the Wollensaks will be this price.

E. Programs to Be Used in the Project

There will be two main sources for the programs which will be used in the project after their review by the Program Selection Committee. One source will be WBGO-FM; the programs listed below are all scheduled to be broadcast on the main channel next semester, and have been preliminarily selected as programs for use on cassette and SCA. The other source for cassette and SCA will be the National Public Radio Instructional Program Service.

Possible WBGO Programs for SCA and Cassette

1. It Takes a Heap O' Livin' to Make a House a Home* (Spring, M9:15, T10:45, Th1:30, 15 minutes). This series, developed with the Division of Curriculum and Instruction, was planned to aid teachers in presenting and exploring family living, guidance and social studies with their students.
2. Not For Parents Only (Spring, Th9:30, F8:30, 15 minutes). This program deals with information about education in Newark, especially the services offered by the Department of Child Guidance, and is also WBGO's first call-in series.
3. The People are the City (Spring, M11:15, T10:00, W8:30, Th1:45, F8:00, 15 minutes). This series is drawn from interviews with some of the people who make the city tick. Its aim is to demonstrate that, rather than being an impersonal machine, the city is a living, breathing organism whose cells are its people.
4. They Led the Way (Fall and Spring, M2:15, W1:45, F10:30, 15 minutes)*. This program consists of dramatized biographies of men and women who were first in many areas of living, two of whom are identified with Newark and her neighbors.
5. Tales From the Talk-Talk Hut (Spring, M1:45, T11:00, 15 minutes)*. A series of tales from African folklore.

Possible National Public Radio Programs for SCA and Cassette

1. The Better to Listen With, II (Grades K-3; Producer: KUOM, University of Minnesota; 16 programs). To develop awareness that "listening" is a positive act like reading (to distinguish it from hearing) and to develop simple listening skills leading up to purposeful listening as a basis for remembering and understanding.

*Detailed Teachers' Manuals available

2. Peopleworks (Grades: Junior High; Producer: WHA, University of Wisconsin Extension, 16 programs). Career and identity development within a group context.
3. Read Me the Comics (Grades 1-3; Producer: WNYE, New York City Public Schools; 15 programs). Pre-reading and early reading skills development.
4. Spelldown (Grades 3-8; Producer: KBPS, Portland Public Schools; 32 programs). Designed to arouse interest and enthusiasm in the study of spelling through weekly spell-downs.
5. Twentieth Century Presidents (Grades 7-9; Producer: WBOE, Cleveland Public Schools; 6 programs). To offer information and insight into these presidents.
6. Up to Your Ears (Grades 5-6; Producer: WHA, University of Wisconsin Extension Division; 27 programs). To encourage children to be more aware of the sounds around them and to experiment with simple musical instruments.
7. Who Cares? (Grades 3-5; Producer: KBPS, Portland Public Schools; 15 programs). To help children with intelligent values clarification.
8. Wild, Wacky, Wonderful, Whizbang Word Emporium (Grades 6-8; Producer: WABE, Atlanta Public Schools; 11 programs). To introduce poetry and prose in an exciting, interesting and entertaining way.

F. Evaluation and Survey Forms

The final evaluation forms will be designed primarily by the Project Consultant, with assistance from the Project Director, the Project Coordinator and Gale Gilbreath, the project technical advisor. Among some of the major items we suggest should be covered are:

1. Technical Assessment

- a. Determine operating costs (power, personnel, equipment, replacement and repair costs) for each delivery system.
- b. Determine and measure the audio quality of each delivery system.

2. Teacher, Student and Administrative Evaluation

- a. Which systems were used the most?
- b. Why were the delivery systems utilized?
- c. What problems were encountered with each system?
- d. Were there psychological differences?
- e. Were there vandalism and theft differences?
- f. What was the teacher and student audio quality assessment?

IV. A REVIEW OF THE LITERATURE ON AUDIO TECHNOLOGIES AND INSTRUCTIONAL PROGRAMMING

A. SCA

Utilization of FM Subsidiary Communication Authorization -- SCA, as it is commonly known -- has become an issue of some debate among the public radio industry. In large part it has become controversial because it represents something unknown: a change in broadcasting techniques. Opponents see it as an attempt to dislocate instructional programming by placing it on an inferior channel. They argue that the difficulties caused by technical quality and the use of a special receiver relegate SCA users to second-class status. Furthermore, they contend, by being placed on a "closed" signal SCA programmers are cut off from the community at large.

That it should still be so unknown and controversial may itself be a comment on the well-being of educational radio, for SCA is hardly a new innovation. Developed in the 1940's, SCA became a major source of revenue to many fledgling commercial FM stations in the 1950's. In the late 1960's, it was first used for educational purposes by WHA-FM and the University of Wisconsin Extension Division for continuing education for medical doctors. Later programming was expanded to include a variety of college courses for credit. In 1969 Minnesota began a statewide programming service for the blind and handicapped through SCA.

More and more universities are starting to use SCA for courses for credit and extension services. West Virginia Wesleyan College in Buckhannon, West Virginia, for example, has begun to offer college courses for credit

over SCA. According to Mr. Don Roth, Director of Broadcasting at the College, students who enroll are given SCA receivers for the duration of the semester along with written materials. There have been no major technical problems with the arrangement.

The Albany Medical College in Albany, New York offers postgraduate instruction for physicians in many health care disciplines and specialties over the SCA channel of the college's WAMU-FM. It operates an interactive audio and visual teaching system which interconnects some 60 hospitals and nursing homes in six northeastern states with the Albany Medical College facility.

Four public stations licensed to the University of Missouri used SCA last year for providing elementary school teachers with in-service education on reading skills methodology. According to a paper (1975) prepared by Charles Koelling and Richard Robinson of the University of Missouri at Columbia, teacher and administrative response to the project was highly favorable. Koelling and Robinson conclude that "this effort indicated the basic usefulness of the SCA-FM radio system as a potential approach to in-service education of practicing teachers... While some minor technical problems were encountered in these early stages of the program development, these were corrected as the project was completed."

SCA services are, of course, best known in connection with work done with the blind and handicapped. Ms. Cheryl Strange, Radio Special Projects Manager at the Corporation for Public Broadcasting, estimates that close to 50 public stations are now offering such services on their SCA channels. In many situations the SCA channel is leased or made available to

state or private organizations which program a full day's schedule of reading, music and informational services for the blind and handicapped.

There is not, however, much practical experience with SCA for instructional programming on the elementary and secondary level. More than any other reason, for this situation, it seems, is the fact that it simply has not been tried by any station offering school programming. This seems about to be changed. The Philadelphia school system, currently without any radio station, is studying the possibility of using SCA for in-school programming. In Atlanta, WABE-FM, the Atlanta school station, is attempting to determine if SCA can be used without denigrating the current quality of instructional programming. Those are only two instances of current interest in exploring SCA.

Clearly SCA is a technology that is already being used in innovative ways. It seems to offer a tremendous way to increase programming services and provide new flexibility in scheduling. But many questions at this point must be explored. Can it be adapted for classroom use? How much will it cost to operate? Is it worth investing considerable sums of money in special receivers? Is the technical quality sufficient? And the bottom line: can it be used without reducing the quality and effectiveness of instructional programming? Those are some of the questions that we hope will be addressed in this project.

Sam Holt, a consultant to CPB, wrote in a paper called "A New Approach to Instructional Radio," that "ever since instructional broadcasting began, it has had to weigh the advantages of its reach and theoretical cost-efficiency against the disadvantages of wedging the instructional experience into the confines of the broadcast schedule. Nonbroadcast distribution techniques should free instructional radio from these confines without significantly changing the cost-efficiency."

"Perhaps the key to the entire advantage of a changed distribution system lies in its improved flexibility. New hours for general service programming, no longer committed to instructional use, allow the entire station to be programmed more flexibly and serve a broader range of community interests. And, critically, each classroom teacher will have a better chance to decide what programs are most suitable to the individual institution in his or her classroom. ..."

B. Audio Cassettes

Audio cassettes have been a familiar audio visual tool in classrooms now for many years. Most secondary and post-secondary schools now contain listening laboratories for learning foreign languages. Tape recorders are now considered a common consumer item for home or car use, and are available at a variety of different price ranges.

The Newark school system has used audio cassettes in elementary classrooms for many years for improving reading and listening skills.

**

The key again for this distribution would be flexibility. The teacher would no longer be tied down to a specific scheduled time for broadcast of a certain program. With a cassette recording the program could be used whenever it was most convenient for the teacher. Sam Holt points out most audio materials used in the classroom are for enrichment purposes and are in no way timely, but planned far ahead of actual use. Holt suggests that "an effective planning and ordering procedure would allow central production of cassettes, as ordered

**Note: Section will be added here on Newark experience with audio cassettes.

by individual teachers; and a timely distribution of the cassettes and supporting materials, by methods normal to a school system, to those teachers who order the program." Cassettes could therefore be produced on the basis of need, saving the cost of equipment operation and tape storage.

C. Review of Instructional Programming Literature

In preparing this proposal we have also reviewed some of the research literature available on the attributes and degree of effectiveness of instructional audio programming. Not surprisingly, most of the literature available dates back to the 1930's and 1940's when instructional programming was just beginning and the full potentials of radio were just being realized. We were able, however, to find some new research that has taken place over the last few years which seems to have a better perspective of what radio has and has not accomplished and, to some extent, what it is and is not capable of doing. We will briefly review the literature which analyzes three aspects of instructional audio programming: its unique qualities, its degree of effectiveness and the problems encountered in utilization.

1. The Qualities of Instructional Audio Programming. Since the early 1920's, when it all began, audio instructional programming -- primarily radio broadcasting -- has been used for almost every age group in a variety of different tasks. Although probably best known as an enrichment tool for elementary and secondary schools, audio programming has also been used for college level courses both on and off the campus, teacher in-service programs, industrial and military training and a host of other educational activities.

Over the years, broadcasters and teachers have catalogued some of these unusual qualities and it might be useful to review some of them a moment.

a. Stimulates imagination. Radio and tape recordings, when they are successful, challenge a student to listen and draw mental pictures of the speakers and events. The Instructional Radio Task Force of the National Association of Educational Broadcasters described radio as a "theater of the mind,"¹ a medium that demands the listener's creative participation and involved him in what he or she hears. At their best, recordings involve a person, helping him to think and learn.

b. Develops listening skills. The Task Force on radio instruction also liked what radio can do in developing listening skills.² Learning demands careful, intent listening. The Task Force concluded: "practice in listening skills can help students to become more adept at recalling, making inferences from what was heard, critically analyzing what was heard, and summarizing -- all valuable attributes in today's world."

c. Expert involvement. Taped programming permits the teacher to draw upon the special talents and skills of other people. No teacher could think of excluding the books of great writers, or historians, or scientists, from the classroom. So it is with aural mediums. Through a tape or live broadcast a teacher can feature outstanding scientists, governmental officials

¹"Radio's Role in Instruction," Report and Recommendations of the Instructional Radio Task Force of National Educational Radio, a division of the National Association of Educational Broadcasters, January, 1973, p. 25.

²Ibid., pp. 25-26.

or writers. It also permits the teacher to work with professional communicators via tape who are skilled in the art of presenting educational material in interesting, innovative ways.

d. Flexibility. Radio and tapes can be incredibly flexible. They can be heard by one student, a classroom of students, or an entire school building. They can be heard at home, in a car, in a classroom or at a library. Besides the capability of listening to it almost anywhere, taped programming can go almost anywhere. Radio can bring current events to life by being there to cover events such as debates or congressional sessions when they occur.

e. Timeliness. Taped programming can also be timely. It is able to react quickly to current events much more quickly than it takes to prepare reading materials. To implement new material on Black history or drug education, for example, could take several years for a print medium; audio programming could be produced almost as it was happening.

2. The Effectiveness of Audio Programming. Despite the special qualities audio programming can offer the educational process, its utilization has been disappointing and its effectiveness is still somewhat uncertain. In reviewing the rather lackluster acceptance of educational audio programming, the NAEB/NER Task Force observed that "although instructional radio has been around for 40 years, and in some places has proved itself as a valuable aid to instruction, it has not been generally accepted by American educators."³ One way to "break this logjam of uncertainty which is hampering many educational decisions today" is to develop a greater body of empirical research in this field.

³Ibid., p. 24.

It recommended projects which would study instructional broadcasts on main channel, SCA, and audio cassettes, to name only a few, in a variety of settings, to show what really can be done."⁴

We of course hope this project will add to that body of knowledge. We were able to find some research available, however. Richard Forsythe in his paper "Instructional Radio" summarized the major findings and we list them here below:

-- H. L. Eubank (1930), concluded that current events lessons supplemented with school broadcasts were more effective than those taught by teachers without radio.

-- L. Breuer (1939), found that elementary school children who used radio as part of a science course learned significantly more (in a measured test) than the control group and that they had a greater interest and more favorable attitudes toward science.

-- M. Kimball Wiles (1940), found that junior high school students learned more from listening to a series of news broadcasts than did a comparable group of students studying current events in the classroom.

-- Lionel C. Barrow and Bruce H. Westley (1959), found that a randomly selected group of sixth-graders using radio for "news background programs" scored virtually the same as a television group in a delayed-recall test administered six weeks later.

-- Carl H. Ketchan and Robert N. Heath (1962), reported a comparison of two education classes, one taught by tape-recorded lectures and the other taught conventionally. He found no significant differences in measured learning.

⁴Ibid., p. 9.

-- Woefel and Tyler (1945), reported that Goldstein found in a study of adults that listening comprehension was greater than reading comprehension and that the difference became increasingly noticeable as the intelligence of his subjects and the difficulty of the material increased. His findings also indicated that individuals vary as much in listening ability as they do in reading ability.

James M. Theroux, through his work at the Center for International Education in Amherst, has surveyed the international utilization of audio programming for instruction. If anything, the work being done abroad is even more impressive and encouraging.

In Thailand, he reports, one million students receive at least one lesson in social studies, music or English by radio each week. The objective of the social studies curriculum is to help pupils develop attitudes and values desirable in their culture. Schramm (1973) found that in 26 of the 28 items on a test of attitudes for grade 3, the radio students scored higher than the non-radio students.

In Nicaragua, AID is supporting a radio curriculum development project for arithmetic classes in grades 1-3. Most programs demand a high degree of student involvement such as clapping, writing on work sheets, etc. The project is also utilizing the success of Sesame Street by offering many brief, independent segments, each no longer than 2 or 3 minutes, and by trying to interject "entertainment" into the programs. Feedback for curriculum developers comes from 1) classroom observation, 2) daily student worksheets and 3) weekly performance tests.

In conclusion, there is some information available, only a little of which we have mentioned here, that has found audio programming to do no harm to instruction and in many cases to enhance learning situations. We have also briefly reviewed some of the special qualities audio programming can offer the classroom. There is another side to audio programming, of course. Despite the glowing attributes, the NAEB/NER Task Force found audio programming "seriously underutilized." Our next section will deal with some of the problems that might be responsible for this underutilization.

3. Difficulties Encountered in Fostering Radio Utilization. There are of course hundreds of reasons why there is such a large gap between what the Task Force termed "evident potential and actual use." What follows is a summary of what some writers think are the main reasons.

a. Richard O. Forsythe, in his paper entitled "Instructional Radio," classifies difficulties in the use of radio into two categories: (1) those directly related to the nature of radio and (2) those having an adverse affect on the development of instructional radio, ones Forsythe calls "administrative failures."

Forsythe mentions two difficulties related to the nature of radio relevant to our study. The first is reciprocity. Broadcasting is essentially a one-way medium; it is difficult to know exactly who will be listening to the programs and what their interests and backgrounds are and even more difficult to modify a presentation. Forsythe notes the best way to overcome this problem is through evaluation forms, questionnaires and interviews.

The second "nature-related" problem is versatility. Mass medium radio must contend with the problem of presenting a single, fixed instructional message to large heterogeneous groups in precise time periods. Forsythe's

study in 1966 found scheduling to be the largest single problem in the utilization of instructional radio. Forsythe suggests new technologies such as audio cassettes, central sound systems and SCA may give educators greater scheduling options.

As for "administrative problems," Forsythe concludes that instructional radio will need more administrative support -- including both financial and curriculum direction -- if it is to experience better utilization.

b. The theme running throughout the NAEB/NER Task Force report is that under-utilization has occurred because "educators and many broadcasters are unaware of the potential of media for instruction." The Task Force suggests that if administrators, teachers and even broadcasters more fully recognized the potential of instructional radio, there would be significantly more excitement, research and money devoted to producing quality programming.

As to why educators are unconcerned about audio programming, the Task Force concludes part of the reason is technical. It suggests, among other things, greater utilization of SCA and observes that most educational programming is on FM, not AM radio.

It also lists several reasons why it thinks instructional radio projects have not been more effective. They include: (1) failure to assess with care the community's most urgent educational needs and undertake programming to meet these needs; (2) failure to define clearly the educational mission and to measure efforts against agreed-upon goals; (3) failure to keep administrators, budget analysts, decisionmakers informed and convinced of the value of instructional radio as a whole, and of their local operation in particular; (4) failure to keep the instructional radio service up to date by continuing to broadcast programs

after they have become inaccurate, or obsolete, using old, tired formats for new materials, and using obsolete educational approaches no longer in keeping with new curricula; (5) failure to keep in contact with teachers who use the broadcast to check vocabulary, content, approach, clarity of presentation for intended audience, length of attention span, quality of broadcast signal and any other practical problems at the receiving end, and (6) failure to train new teachers in the use of radio through teacher training institutions, workshops, utilization sessions, etc.

c. Jose C. Manduley's work in the Washington, D. C. school system (1973-4) emphasized teacher and administrative roles. He emphasizes that the attitude and the methods and techniques the teacher employs or fails to employ can mean "all the difference between a successful or poor broadcast lesson. No matter how educative or superior the broadcast may be, if a teacher fails to recognize its contributions towards the pupils' learning experience, much of its value is lost. Probably even more important," Manduley concludes, "is the principal's attitude toward instructional radio. Their role is of utmost importance, since the degree of assistance they provide teachers can either stimulate or deter them from using the programs." One of the ways Manduley recommends encouraging the utilization is to have teachers attend training sessions to learn effective use of the radio broadcast, to prepare lesson plans before the radio program is broadcast, and to follow up the radio lesson with some kind of activity, such as a discussion.

d. In his paper entitled "Quality in Instructional Radio," James Theroux emphasizes a process of preparing and producing a program that will increase the effectiveness of the broadcast. He emphasizes that the producer

must first identify his audience and then design a program whose format and content are appropriate to that audience, and after broadcast evaluate the effectiveness of that program. Theroux points out that Widemeyer (1976) has characterized most approaches to instructional programming as "linear." Typically, an administrator gives an assignment to a radio administrator, who gives it to a script writer, who produces the program which is broadcast and monitored by the teacher. The process resembles the workings of a relay race. Widemeyer recommends instead the team approach, where the administrator, the curriculum personnel, the principals, the teachers and maybe students can all influence the total development of the program. Widemeyer concludes that it will probably take more time and effort to produce this program but will result in a higher quality product and one that will be more utilized.

BIBLIOGRAPHY

1. Conner, Pat A. (Instructional Radio Specialist, South Carolina Department of Education), "The 'Four-D' Approach," unpublished outline
2. Conner, Pat A., "New Sounds from the South: The Genesis of Instructional Radio in South Carolina," September 13, 1976, unpublished paper
3. Corporation for Public Broadcasting, Radio Information Services for the Print Handicapped: A Handbook for Local Use, 1975
4. Forsythe, Richard O., "Instructional Radio," Encyclopedia of Education, Volume 7, 1971
5. Forsythe, Richard O., "Purdue University: An Open University Via Radio," unpublished paper
6. Gage, N. L., Handbook of Research on Teaching, Chicago: Rand-McNally, Inc., 1972.
7. Holt, Sam, "A New Approach to Instructional Radio," May 19, 1976, Report prepared for the Corporation for Public Broadcasting
8. Koelling, Charles and Robinson, Richard, "Final Report on the SCA-FM Radio Programs Dealing with the Teaching of Elementary Reading Skills -- Fall, 1974 to Spring, 1975," Continuing Professional Education, College of Education, University of Missouri-Columbia, 1975, unpublished paper
9. Levenson, William and Stasheff, Edward, Teaching Through Radio and TV, New York: Holt, Rinehart & Co., Inc.
10. Manduley, Jose C., "Teacher Utilization of Instructional Radio," Parts I and II, Educational Broadcasting, March/April 1976
11. National Educational Radio Instructional Radio Task Force of the National Association of Educational Broadcasters, "Radio's Role in Instruction," January, 1973
12. Ryland, Edwin H., "Radio Education in Small Colleges: Objectives and Means," paper prepared for the National Association of Educational Broadcasters
13. Theroux, James M., "Instructional Radio Reconsidered: An International Perspective," paper prepared for the convention of the National Association of Educational Broadcasters, November 17, 1975
14. Theroux, James M., "A New Context for Broadcaster Training," to be published in the December, 1976 issue of Educational Broadcasting International
15. Theroux, James M., "Quality in Instructional Radio," unpublished paper

APPENDIX

CORPORATION FOR PUBLIC BROADCASTING
ENGINEERING RESEARCH AGREEMENT

CPB Account No. 7883

The Corporation for Public Broadcasting (CPB) and The Office of Newark Studies, Rutgers University, 909 Broad Street, Newark, N.J. 07102 (Contractor), hereby agree as follows:

Section I. Purpose and Functions

1. The Contractor agrees to prepare and deliver to CPB by November 15, 1976, a proposal concerning the use of audio cassettes and sub-channel radio in Newark, N.J. in accordance with the specifications contained in Attachment A which is expressly made part of this Agreement.
2. The Contractor shall perform as an independent contractor and nothing contained in this Agreement shall be construed to be inconsistent with this relationship or status. Neither the Contractor nor any of the Contractor's agents, employees, or subcontractors shall be agents, employees or representatives of CPB. No use of the Corporation's name which would be inconsistent with this independent status shall be made without prior written permission from the Corporation.
3. The Contractor in performing pursuant to the specifications contained in Attachment A, shall perform according to Contractor's own methods of work and shall be in exclusive charge and control of the work and responsible for its proper completion. The Contractor shall be solely responsible for supervision of any agents, employees and subcontractors that the Contractor may hire or retain in performing his duties under this Agreement.
4. The Contractor has the option to delegate performance of appropriate portions of the required research, but at all times, the Contractor will remain responsible for compliance with the specifications contained in Attachment A.

Section II. Payments

1. CPB agrees to pay the Contractor \$3,000 in connection with the performance of the Agreement in accordance with the CPB approved budget.
2. CPB shall make payments to the Contractor in accordance with the following schedule: Upon Billing.

3. The Contractor will not use funds received under this agreement to perform any function or services not specifically authorized by this Agreement.

4. CPB makes no express or implied commitment to provide any funds in excess of the amount set out in numbered paragraph 1 of this Section, or in any other way to extend the scope of this Agreement.

Section III. Compliance With The Laws

In performing its obligations under this Agreement, the Contractor will comply with all applicable federal, state and local laws and regulations.

Section IV. Examination of Records by CPB and/or the Comptroller General

The Contractor agrees, in accordance with Section 396 (1) (3) of the Public Broadcasting Act of 1967, as amended, 47 U.S.C. 396, et seq., to keep such records as may be reasonably necessary to fully disclose the amount and the disposition of the proceeds of this Agreement, the total cost of this project or related undertakings connected with it, and the amount and nature of that portion of the cost of the project or related undertakings supplied by other sources, and such other records as will facilitate an effective audit. The Contractor further agrees that CPB and/or the Comptroller General or their respective duly authorized representatives shall have access for the purpose of audit and examination of any books, documents, papers, and records of the Contractor, that are pertinent to funds received under this Agreement.

Section V. Final Accounting

A full and complete financial accounting will be furnished to CPB on December 1, 1976 in such form and detail as may be requested by CPB.

Section VI. Standards of Work

The Contractor agrees that the performance of work and service pursuant to this Agreement shall conform to the highest professional standards.

Section VII. Nondiscrimination

During the performance of this Agreement, the Contractor agrees that it will not discriminate against any employee or applicant for employment because of race, color, religion, age, sex or national origin. The Contractor will include the provisions of this paragraph in all subcontracts entered into in connection with carrying out this Agreement.

Section VIII. Equal Opportunity
and CPB Assistance

The attached policy on "Equal Opportunity and CPB Assistance" is specifically made part of this Agreement. In accepting this Agreement, Contractor agrees to implementation of this policy as a term or condition of this Agreement.

Section IX. Rights in Data
and Copyright

1. CPB shall have exclusive, unlimited rights in the "subject data" compiled, produced or resulting directly from performance of this Agreement. For purposes of this provision, "unlimited rights" means the right to use, duplicate or disclose the data in whole or part, in any manner and for any purpose whatsoever, or to have or permit others to do so.
2. The term "subject data" as used herein includes writings, sound recordings, pictorial reproductions, technical information, drawings or other graphic representations, and works of similar nature whether or not copyrighted, which are part of the performance of this Agreement.
3. With respect to any "subject data" upon which a copyright may be obtained, unless equitable factors dictate a different conclusion, ownership to such copyright will be held by CPB. If any copyright is determined to be held jointly, any benefits derived from such copyright shall be allocated in a manner consistent with the joint ownership. If any of the above issues cannot be resolved by the parties, they shall submit such issues to a mutually agreeable arbitrator.
4. Upon completion of performance pursuant to this Agreement, the Contractor may be granted, with the permission of CPB, a non-exclusive, royalty-free license to use, duplicate, or disclose the material compiled, produced, or resulting directly from performance of this Agreement.

5. Upon request, Contractor shall furnish to CPB duly executed instruments and other papers as are deemed necessary to vest in CPB the rights granted to it under this section and to enable CPB to apply for and prosecute any copyright in any country.

Section X. Term

The term of this Agreement shall commence upon execution of this contract and continue until November 15, 1976.

Section XI. No Other Agreement

This Agreement supersedes and replaces any previous documents, correspondence, conversations or other written or oral understandings related to this Agreement which are not consistent with or not contained in this Agreement.

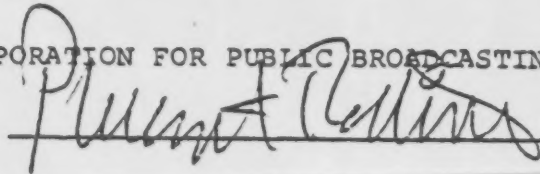
Section XII. Construction

This Agreement shall be construed under the laws of the District of Columbia, regardless of the place of execution or performance. All instruments executed pursuant to this Agreement shall also be governed by the laws of the District of Columbia.

IN AGREEMENT to the foregoing, the authorized representatives of the parties affix their signatures.

CORPORATION FOR PUBLIC BROADCASTING

BY

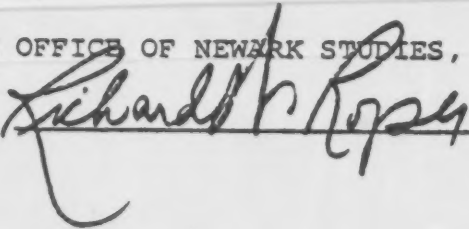


Date

9/21/76

THE OFFICE OF NEWARK STUDIES, RUTGERS UNIVERSITY

BY



Date

9/21/76

ATTACHMENT A

The task concerns the preparation of a proposal and suitable background data to assist in analysis of the proposal for the design of an experiment in alternate delivery systems for Newark, New Jersey public radio. Specifically, the use of audio cassettes and subsidiary carrier authorization (SCA) will be examined by public radio in Newark, New Jersey in order to assess the potential of these technologies for radio distribution other than available with the existing main channel of FM stations.

The basis of the proposal shall be the transfer of the station license from the present school licensee to a community station. In order to continue serving the school system and benefit students in a cost effective manner, the instant project shall consider some combination of main channel (SCA) and audio cassette delivery program to provide the best possible alternate service while still performing the community role which the station has selected.

The design of the experiment and proposal shall follow the guidelines listed below where feasible:

1. To determine the cost benefit and utilization factors in using the sub-channel for point to point instruction.
2. To provide an audio cassette duplication and distribution center that can respond to teacher and student demand.
3. To evaluate this multiple delivery of audio materials in terms of cost and efficiency.
4. To develop a plan for the integration of this radio/audio instruction into the media curriculum program of the school system.

None of the above shall preclude investigation of the establishment of one or more additional audio distribution systems within one or more schools using main channel (SCA) and/or audio cassette and a wired sound (P.A. system) or AM carrier current.

The proposal shall also estimate the cost and detail the schedule for:

- a. Necessary receivers and equipment for sub-channel reception;
- b. Duplication hardware for audio cassette delivery;
- c. A pre and post evaluative survey with teachers and students;
- d. A cost analysis of the systems design;
- e. A plan for the integration of the system into the media program of the school.

Feb 22, 1977

Probers are critical of Newark schools

By ROBERT J. BRAUN

A special state investigating team has charged many Newark children attend class under unsafe and unsanitary conditions, at times without needed books and supplies or even regularly assigned teachers.

The team, headed by former Acting Essex County Superintendent Ralph R. Caputo, concludes in its 96-page report conditions in the state's largest system "deny" the children "the opportunity to realize their fullest potential."

The report recommends direct state intervention in the "delivery of educational services" and criticizes the state's "uncoordinated, fragmented and sporadic monitoring."

The team, which began its investigation of the city schools last month, inspected a sampling of 11 schools. Although the report indicates some efforts were made by city school officials to correct problems in time for the state

visit, the investigators found:

- Eight of the 11 schools visited failed to meet state building standards and need to be extensively renovated or remodeled; a ninth should be "abandoned," according to the state officials.

- Teachers were not assigned to classes in some schools "for months" after school opened in September, with some vacancies filled only last month.

- Textbooks and supplies ordered by schools and, according to vendors, delivered last year, have never made their way into the classrooms.

- Certificates for nearly one-fifth of the teachers in the schools visited could not be found.

- As many as 30 per cent of the students are absent every day in one of the secondary schools.

- Children identified as needing special education have been "illegally" placed.

- Security is poor, leading some teachers to lock their doors and some administrators to chain outside exits — a violation of fire codes.

- Teachers report as "common-place" in the high schools the use of drugs and alcohol, sexual activity among students, vandalism, theft and physical attacks on students and teachers.

- Cafeterias are "extremely unsanitary."

- While some schools had been cleaned up in time for the state visit, the team members said they found cockroaches and rodents "running rampant" in the schools, and hardened human

(Please turn to Page 14)

(Continued from Page One)

waste on the floors at children's lavatories.

- Some shop classes have materials but no teachers — some have teachers but no materials.

- Non-use of "very expensive" audio-visual equipment, including a television unit that was stored new in 1971 and never used.

- A "paucity" of instructional materials in special education classes; so-called "resource rooms" in two high schools contained only desks.

- A "disparity" in records showing the pur-

chase of expensive audio-visual equipment and its actual presence in the schools.

- Unexplained shortages of money in supply and other accounts.

- "Inadequate reading materials, outdated textbooks, limited textbooks, workbooks, pencils, paper, crayons, art supplies, chalkboards, etc.": one school had no math books for its first, second and third grades while the fourth graders had social studies texts that did not match the curriculum used.

- No cooking materials for home economics

classes "because vendors refuse to deliver due to lack of payment."

- No health services available to students when their lunch hour happens to coincide with that of the nurse.

- "Limited compliance with immunization regulations."

- In some schools, children are "needlessly" being labeled "handicapped."

- Absenteeism among professionals is delaying finding adequate special education services for pupils.

- Children are being

labeled in need of special services by educators who have not met them.

The investigation was requested, without public announcement, by State Education Commissioner Fred G. Burke in mid-December.

Burke had earlier told a Senate Education Committee hearing that recent state intervention in the Newark system, funded primarily by state money, had "generally been successful."

Several days later, however, he wrote to Caputo, indicating he had heard "reports" of poor conditions in the schools and re-

questing a "review of the educational process."

Although Caputo, who has been replaced by Burke, announced he would conduct an extensive investigation of the schools, state education officials attempted to play down the scope of the probe, calling it a "routine" monitoring as required by the new school reform law.

Earlier this month, Burke told the State Board of Education he had confidence in local school officials and in the office of auditor general, a special state officer placed in the Newark schools more than a year ago with the responsibility of alerting the com-

missioner to problems in the system.

Burke told the board he believed children were "better off" in Newark because of the state presence.

The report, while not explicitly criticizing the state efforts, recommends that more emphasis be placed on the provision of

educational services by the state rather than on "examining problems and recommending solutions at the bureaucratic level."

The needs of the children, the report concludes, go beyond "the superficiality of sterile legislation, intricate organizational charts and self-interest groups." It calls for making the future of Newark

children "the moral commitment for every citizen of this state."

The report, already filed with the state education department, also is expected to go to the Legislature.

The Senate Education Committee was prepared last month to issue its own report on the condition of the Newark schools. That

report was expected to have adopted the general attitude of the department that conditions in the city schools were fast improving.

With Caputo's report, however, the Senate panel might revise its study and, according to one State House source, recall Burke to testify about possible discrepancies.

Councilmen demand Taylor's resignation

3/4/77

By ROBERT J. BRAUN

Eight of Newark's nine city councilmen yesterday demanded the immediate resignation of schools Superintendent Stanley A. Taylor and warned they would use their power over the school budget to make their demands stick.

The councilmen, in a rare joint statement, also demanded that five members of the school board, who also have city jobs, either quit their jobs or resign from the board.

The only dissenter in the group was Donald Tucker, a councilman-at-large in the state's largest city.

The council statement came in re-

sponse to the publication of a report by a team of state investigators who charged that unsafe and unsanitary conditions existed in the schools they inspected.

Mayor Kenneth A. Gibson, who appointed all nine board members, has called for changes in the school system's top leadership. State Education Commissioner Fred G. Burke has given the school board two weeks to develop a plan for improving conditions in the city schools.

"We council members," the joint statement read, "are deeply disturbed by the continuing reports of educational neglect, poor fiscal management and

(Please turn to Page 16)

(Continued from Page One)

possible conflicts of interest in the operation of the Newark Board of Education, which indicates a breakdown in the delivery of pupil services and causes irreparable harm to our school children."

The statement calls on Gibson to "exert strong leadership" in meeting the council's demands, which include:

- Taylor's resignation and replacement with Howard E. White, the acting Essex County schools superintendent, as interim city superintendent until a permanent replacement can be found.

- The resignation either from their board posts or city jobs of Carl Dawson, the board president, and members Vickie Donaldson, Charles Bell, George Branch and Julio Quinones. All five hold city posts.

- The removal of "any and all unqualified teachers" and the establishment of a "program . . . to recruit highly trained, innovative teaching personnel who will perform effectively in an urban environment."

- The removal of board counsel Robert Pickett, whose firm, according to the council statement, receives "more than \$100,000 per year" from the school board.

The statement also indicated that the council will send its auditors to review the spending of Taylor's office, the distribution of teaching supplies, the expenditures of board members and "other accounts."

"These auditors will gather immediate data to be evaluated in an effort to bring about positive educational reform measures," the statement added.

The statement opens with a concession that the council "does not appoint or confirm" school board members. But it ended its statement with an ominous warning:

"If none of the reform measures which we have requested are enacted, the governing body will be forced to utilize the only legal option it has regarding the board of education, and that is the adoption, reduction or rejection of the board's budget."

"We will use whatever budgetary action is necessary to ensure and safeguard the delivery of educational services to the public schoolchildren of Newark."

The council members say they have given Taylor a "no confidence vote" and want him out because "there is no effective leadership emanating from his office" and because he "has failed to implement educational reform measures to ensure a quality school system in Newark."

The councilmen want the board members to resign from their city jobs because they are "affected by certain political and personal pressures which prevent them from making decisions that are in the best interest of Newark's schoolchildren."

The board attorney should go, the councilmen said, because his firm "has failed to deliver timely and objective decisions on many board of education conflict-of-interest cases and other board matters." This was an apparent reference to a series of disclosures of board

employees doing business with the board.

Tucker, the lone dissenter, said he agreed with much of the joint statement and said he would "join with my colleagues in not giving the board a penny" unless conditions were improved.

But he said he was "not completely sure that all of the ills . . . can be completely dumped on Stanley Taylor." He said council members and Gibson "must share in the responsibility for the deplorable conditions of our schools."

"To attempt to make Mr. Taylor the sacrificial lamb is to attempt to dismiss the problem without realistically devising a plan of action which would resolve the problem," Tucker said.

He said he did not believe that it was "absolutely valid" to believe that the holding of city jobs by board

members was a conflict of interest. Tucker pointed out that three city councilmen hold county jobs and fourth, Anthony Carrino of the North Ward, is a Newark policeman on leave.

Tucker also objected to the references to Pickett, calling them a "political smear."

He conceded that the school system was "in dire need of improvement," but that "to think we can come up with simple solutions to major, complex urban issues is to fool ourselves."

The joint statement was made by Earl Harris, the council president; at-large members Anthony Giuliano and Marie Villani; Carrino; West Ward Councilman Michael Bottone; South Ward Councilman Sharpe James; Central Ward Councilman Jesse Allen and East Ward Councilman Henry Martinez.

3/8/77

School board will cut 190 Newark teachers

By STANLEY E. TERRELL

The Newark Board of Education, after a hectic day of meetings aimed at resolving a \$1.3 million budget shortfall, voted last night to eliminate 190 school teachers and to remove crossing guards from the school system payroll.

The action came more than an hour after the Board of School Estimate voted 3-2 — with Mayor Kenneth A. Gibson casting the deciding vote — to reject an emergency request for a \$1.08 million appropriation to help avert the layoffs.

Executive Schools Superintendent Stanley Taylor said the 190 positions involve 41 team teachers and 149 pool teachers, but said many are eligible to fill about 60 vacancies which currently exist within the school system.

In addition, the board will remove 145 school crossing guards from its payroll to help close the budget gap. The guards had been absorbed by the board

two years ago when the city's fiscal crisis threatened to eliminate them from the police department payroll.

The vote to lay off the 190 workers ended months of discussion, speculation and indecision on how to deal with the shortfall, which was a fluctuating figure throughout most of that time.

Taylor said, however, that the plan approved last night will leave all major areas affecting the educational system intact, "and won't affect the school program as much" as other proposals which were considered.

The superintendent also explained that the proposal also includes the transfer of six-hour aides in the school system into new federal programs which have surfaced in the past few months.

Six board members were present when the vote was taken on the layoffs.

(Please turn to Page 9)



Stanley Taylor
'Not playing games'

(Continued from Page One)

and all except Charles Bell cast votes in favor of the package.

Board members Michael Petti, Julio Quinones and Arthur Rosa were not present for the vote.

The three were present, along with other board members, in city council chambers earlier in the afternoon, when the five-member body heard arguments for the emergency grant.

The estimate board meeting, which lasted nearly two hours, also drew several interested spectators — most of them nonprofessional school employees and representatives of teachers groups, including Newark Teachers Union President Carole Graves.

Councilmen Sharpe James and

Henry Martinez sharply questioned whether an actual emergency exists in the school system, citing a request for \$2 million in emergency money in 1974 which the state denied because it felt an emergency situation did not exist.

Martinez said he was skeptical because at that time, following the state's rejection, the board "discovered" monies needed to solve its fiscal problems.

Board counsel Robert Pickett asserted that a combination of factors — including the Caputo report and pressures from both Gibson and State Education Commissioner Fred G. Burke for plans to correct deficiencies cited in that report — "make this an emergency situation."

Pickett, while noting that the re-

quest for funds was to deal primarily with pay increases as part of the board's contractual agreements, said he felt the board's request was "legally defensible."

James, who said he voted against budget cuts for the board for the past two years, said he sympathized with those workers who would be laid off without the request, but said "I don't see how granting these funds will alleviate the ills cited in the Caputo report."

...

James' vote on the emergency grant was heavily tinted by the failure of Taylor or Pickett to assure the meeting that no layoffs would occur if the money were approved.

Taylor noted that the city has de-

creased the board's budget for the past three years, and asserted that the school system, which has a budget of \$124 million, needs at least \$132 million "just to stand still."

Taylor said the school system has curbed spending for months, eliminated administrative vacancies and refused to fill vacancies in order to live within its means.

"We're not playing games with the money," Taylor insisted, adding that the anticipated layoffs "would decimate this school system."

The superintendent said all the ills that exist in the school system "still exist because we're playing games with each other. And I'm not going to be the fall guy."

Taylor said the city "by and large

has not supported the schools the way they say they do, and it's time they did."

However, James said he sat on the estimate board and voted against last year's budget slash, and had questioned why the board was only seeking \$124 million, which he felt was "inadequate" to effectively run the school system.

He also raised concerns as to why the board canceled an appeal of the budget cut which was being considered by Burke at the time.

The rejection of the emergency appropriation left the board no choice but to vote the layoffs.

However, board president Carl Lawson said other options are still being reviewed and pursued by the board which, if found feasible, may alter the layoff decision.

Carrino calls school 'ruin' Taylor's fault

3/8/17

North Ward Councilman Anthony Carrino yesterday accused State Education Commissioner Fred G. Burke of "playing games with Newark's school children" by allowing the city's executive superintendent of schools, Stanley Taylor, to "ruin the city's education system."

Calling Taylor "incompetent," Carrino also faulted Mayor Kenneth A. Gibson, claiming, "If the mayor were sincere about reforming the system, he should begin by terminating Mr. Taylor."

"When the state allowed Mr. Taylor to take over the reins of the entire school system several years ago, the education quality in Newark began to decline even more rapidly," Carrino contended, noting he had called for Taylor's resignation as early as 1975.

The North Ward councilman charged the deficiencies in the Newark school system have been repeatedly brought to light since Taylor took office, but Burke "shunned all this testimony and painted a rosy picture of the school system — a move intended to protect the system's administration."

• • •

According to Carrino, despite evidence to the contrary, "Mr. Burke fails to acknowledge that the Newark school system is a loose-knit, incompetent and failing organization."

And the state education department, he maintained, "is not facing reality if it thinks that the Newark Board of Education will come up with a plan to correct the problems in the system within two weeks as directed."

Carrino insisted, "The only way to turn the system around is for the mayor to terminate Taylor and bring in someone new. The state commissioner must demand these changes immediately in order to salvage the remnants of what was once regarded as the best school system in the state."

• • •

Gibson, who has appointed all the board members, last week warned the school board and administration that a top-level personnel shakeup could be expected at the board, which was harshly criticized in a report submitted by the Essex County superintendent of schools office. The mayor demanded that a design for thoroughly overhauling the system be on his desk by next week.

Two days after Gibson's strongly worded statement, eight of the nine city council members issued a statement calling for the resignation of five board members, Taylor and the board's legal counsel, the Newark firm of Pickett & Jennings.

Councilman-at-large Anthony Giuliano yesterday announced he would urge his colleagues today to go even further and demand the resignation of Burke.

Newark board under gun at budget time

By STANLEY E. TERRELL

The Newark Board of Education this week must make several decisions which will have an impact on the city school system.

The board, under fire from political leaders, must formulate its 1977-78 budget and also develop a master plan to correct deficiencies uncovered within the system.

In addition, the board has begun sending pink slips to 190 pool and team teachers who were eliminated from the current budget as

part of a plan to close a reported \$1.3 million gap.

The day of decision for the budget plan and correctional proposal is Wednesday. But there is much to be considered between now and the time the votes are cast.

The budget plan, anticipated to seek \$132.2 million to run the system for the 1977-78 school year, must be finished and approved this week so it may be forwarded to the Board of School Estimate, scheduled to vote on the package March 25.

The "plan of action," aimed at correcting problems cited in a recent state investigation, is to be on the desks of Mayor Kenneth Gibson and State Education Commissioner Fred G. Burke by Wednesday.

Drafts of both plans were submitted to the nine-member decision making body on Friday by Executive Schools Superintendent Stanley Taylor.

However, Taylor acknowledged both plans were "incomplete" — the budget plan because it does not include salary considera-

(Continued on next page)

Job cuts and reform high on the agenda

(From preceding page)

tions still to be negotiated, and the master plan because it lacked the input of the board, parents and teachers.

In related developments, parent groups at two alternative education centers staged demonstrations on Wednesday and Thursday, demanding that Taylor retain aides slated for transfer under the budget modification plan.

Taylor told the groups he would try to retain all or some of the total of 14 aides at the Ironbound and Springfield Avenue community schools, which will necessitate finding money in the budget to keep them on until June.

Under the budget modification plan, certain teacher aides will be transferred to schools receiving federal funds for those positions as a means of relieving the board's fiscal problems.

In addition, the board voted to eliminate 145 school crossing guards from its budget. The guards, formerly on the police department payroll, were absorbed by the board two years ago when the city's fiscal crisis threatened to wipe out the program.

The board is optimistic that the city will again reinstate the crossing guards on the police payroll, thus allowing the service to continue for the 71,000 students in the system.

Board President Carl Dawson told the board Friday to formulate a formal request to the city about placing the crossing guards back on the city payroll, and said he's received "strong commitments" from city officials that they will endorse acceptance of the proposal.

Regarding the master plan, Dawson said board members and staff "have been working feverishly, around the clock" to develop a comprehensive approach to tackling problems in the city schools.

The state investigating team report — known as the Caputo report — has caused waves to ripple throughout the city.

The Caputo report cited, among other things, that many Newark children attend

class under unsafe and unsanitary conditions, at times without needed books and supplies or even regularly assigned teachers.

It cited problems of absenteeism, poor security, drug abuse and vandalism, underutilization of expensive audio-visual equipment, unexplained shortages of money, and inadequate reading materials.

The report has brought intense pressure on Taylor and the policymakers to come up with a plan to correct the deficiencies.

Burke went as far as to threaten "direct state intervention" unless an acceptable plan were submitted within two weeks of his directive.

Gibson, too, issued a warning that he was "prepared to use the full influence of my office" to secure the dismissal or resignation

of anyone failing to devote their efforts to improving the school system. Gibson appointed the board.

The responses from citizens and officials began pouring out — ranging from demands for the resignation of Taylor and some board members, to charges of political game-playing by both board and city officials, and defenses of Taylor as being used as a "scapegoat."

Eight of the nine city council members have called for the resignation of Taylor and five board members.

Councilman-at-large Donald Tucker has sought a ruling from Corporation Counsel Milton S. Buck on whether five board members who hold municipal jobs are involved in a conflict of interest.



Stanley Taylor
A busy week

4/17/77 STAR LEADER

Board moves to oust Newark schools chief

By SANDRA KING

The Newark Board of Education yesterday brought lengthy charges of faulty performance against Superintendent of Schools Stanley Taylor in an attempt to oust the \$47,000-a-year executive — a move which caused one board member to resign in protest.

In a closed-door session, the board voted to stand behind the internal administrative charges — prepared by former Board President Carl Dawson — of malfeasance, misfeasance, inefficiency and nonfeasance.

Taylor, who refused comment on the advice of his attorney, has 10 days to respond to the accusations which are detailed in a 55-page report. Sources say a formal administrative hearing on the charges is expected to be held within two weeks.

Dawson, who also declined comment yesterday, last month called on Taylor to "recognize the crying needs of Newark students and step aside."

"You do not have the respect and support of your top assistants and morale is all but absent right down to the schools," Dawson had asserted, declaring, "I see no hope in the current direction of your leadership; it is not sufficiently aggressive, comprehensive or serious."

Meanwhile, in a letter to Mayor Kenneth A. Gibson, board member Helen W. Fullilove, with only two weeks left in her term, resigned "to demonstrate to you and to the community my utter contempt in which the board has behaved concerning charges against Mr. Taylor and its general conduct over the past two years."

She said Newark students have "suffered great losses" because of the school system's "inability" to develop sound programs and improve the effectiveness of school personnel.

Mrs. Fullilove, a former board

president, charged lay boards of education are "obsolete."

She said that as a member of the board of the New Jersey School Boards Association she had the opportunity to see board members from throughout the state "but none more selfish or more dangerous to the well-being of children than those who now serve on the Newark Board of Education."

She said she has been "perplexed" by Gibson's decision to appoint a member of his executive staff to serve on the school board "when it is quite apparent that that decision violates the spirit of state law governing memberships on

(Please turn to Page 6)

Board moves to oust Newark schools chief

(Continued from Page One)
boards of education."

"Education will stop until this matter is resolved," Mrs. Fullilove said, adding she hopes to discuss the matter with the mayor in person.

Despite Dawson's appeal Taylor did not step down. And last week Dawson resigned his post, remaining on the board as a member, but abandoning the top leadership spot.

Acting Board President Elena Scambio, who will serve as president until a special election, was not available for comment yesterday. But board sources indicated that, while the secret vote on the charges passed, there was some opposition.

The 55-page recitation of the Taylor charges follows a brief preface in which it is noted that "the executive superin-

tendent is responsible for and has general supervision over the organization and the educational, managerial and fiscal operations of the school district, including the schools therein.

"The executive superintendent has supervisory authority over all officers and employees, professional and non-professional, of the school district, all of whom report to him," the report continues.

And, most crucially, the introduction to the charges stated. "The executive superintendent is required to keep himself informed as to the condition and progress of the educational, managerial and fiscal operations of the school district and he shall report thereon, from time to time, to and as directed by the board."

Nearly 800 charges are listed in the document certified by the board yesterday,

with a number of the allegations repeated under the malfeasance, misfeasance, nonfeasance and inefficiency headings.

Under the most serious of the categories — malfeasance, defined by Board Attorney Robert Pickett as "an activity prohibited as a matter of law" — nine charges are listed, including Taylor's alleged violation of the law in:

- Continuing to employ noncertified teaching staff members.
 - Employment of substitute teachers.
 - Appointment of a vice principal "contrary to statutory requirements and board of education policy."
 - Failing to "give public notice of proposed goals or revisions to 'T&E' (thorough and efficient education) plan and provide public with opportunity to comment at a public meeting."
 - Failing to conduct a required assessment program.
 - Hiring an employee without board approval "which may result in unauthorized expenditure of funds."
 - Failing to allow the county superintendent "to review and approve proposed school budget for fiscal year 1977-78 prior to its advertisement."
- The word "failure," in fact, is continually repeated throughout the list of charges.
- The bulk of the charges are included under the "misfeasance" heading, with allegations listed under the subcategories:

- "Failure to keep informed as to the condition and progress of the educational operation of the school system."

- "Failure to exercise supervision over the educational operation of the school district."

- "Failure to keep informed as to the condition of the management and fiscal operations of the school district."

- "Failure to exercise general supervision over the managerial and fiscal operations of the school district."

Many of the charges cite the findings of the "Caputo Report," a highly critical state evaluation of the Newark school system, led by then-Acting Essex County Superintendent of Schools Ralph Caputo and made public last February.

Taylor, who was hired by the board as school superintendent five years ago, became the executive superintendent — with greatly increased power and authority — last year after the Legislature approved a special bill reorganizing the state's largest school district.

He received a new three-year contract with the board last summer, which would keep him in the post until June 30, 1979.

But Pickett explained the contract includes a "termination clause," which provides that Taylor — the highest paid public official in Newark history — may be fired in the case of malfeasance, misfeasance, inefficiency "and other just cause."

The contract also provides that in the case of such charges, the superintendent is entitled to a formal hearing.

'PROBLEMS': Dawson quits as board chief with swipe at Taylor

By SANDRA KING

Carl Dawson yesterday resigned as president of the Newark Board of Education with a blast at Executive School Superintendent Stanley Taylor and a call for resolution of the "crippling problems" facing the city's schools.

"It is important that the integrity of the chair be hoisted above personal suspicion so that the real issues are not obscured," Dawson declared in a letter of resignation to his colleagues. He did not, however, resign from the board.

Turners the board president would step down have been circulating since

last month when Dawson blasted Taylor and urged the executive superintendent to "recognize the crying needs of Newark students and step aside."

"No one of us can be permitted to thwart the potential of thousands of others," Dawson had warned Taylor in a May 4 letter.

Taylor, who was not available for comment yesterday, refused to accede to Dawson's request.

Dawson's resignation was revealed by the Office of Board Affairs, effective Monday.

Later, Dawson confirmed his resignation, explaining, "The issue is doing the job, not keeping the job."

In his letter of resignation from the unpaid presidency, Dawson, who is an aide to Mayor Kenneth A. Gibson, charged, "Mediocrity and worse are so pervasively tolerated that there are minimal opportunities to come face to face with relevant, accurate data upon which critical decisions can be responsibly based."

He indicated he will retain his seat on the board and will continue to press for the ouster of the superintendent.

"Being thoroughly convinced that this organization must undergo substan-

tial change, beginning with the executive superintendent, I will continue to pursue these vital modifications," Dawson said, thanking the other board members for their "cooperation during tumultuous times."

When asked to explain his resignation, Dawson said, "This is a necessary turn of events at this time if we are to move to some permanent improvement in the services offered by the Newark school district."

Acknowledging the uproar caused by his public battle with Taylor — whom Dawson claims is incompetent and an impediment to progress — the board president added:

"The purpose of the chair is to be a moderating influence and to mediate disputes — not to be the focal point in a conflict or dispute."

Dawson was named to the board 15 months ago to fill an unexpired term. His appointment by Gibson was widely viewed as the mayor's first direct attempt at involvement in Newark school issues.

When Charles Bell resigned the board presidency last July 1, Dawson, who will be up for reappointment next month, was elected to the board's top spot.

Gibson yesterday said he received

the news of Dawson's resignation "with a deep respect for the strength of personal convictions he gave as his reasons."

"I understand that a person must be guided by conviction or that person will flounder," the mayor said, adding, "I look forward to Carl continuing to make positive contributions to the improvement of education in Newark."

With Dawson's resignation, Board Vice President Elena Scambio will become interim president, pending an emergency election, which must be called within 30 days. The board member who wins the presidency will then serve until the regular reorganization session next March.

WAMMOTU

Ramborghini

SCHOOL CHIEF VOWS TO FIGHT

Newark board suspends Taylor

By STANLEY E. TERRELL

Newark Schools Superintendent Stanley Taylor was suspended from his post with pay yesterday during an emotional special meeting of the Board of Education.

The board voted 5 to 2, with one member absent, to suspend the executive superintendent, pending resolution of administrative charges of malfeasance, misfeasance, nonfeasance and incompetence certified by the board a week ago today.

The action prompted an immediate response by a parent-citizens group supporting Taylor, which will stage a petition rally on the steps of City Hall at noon today demanding that the superintendent be retained and that the board members be recalled.

Taylor responded to the action by declaring he has "no intention of stepping down or ending my administration without an impartial and proper hearing."

Following the vote to suspend the superintendent, security guards were positioned at his seventh floor office, with instructions to allow only Taylor and his staff into the area.

...

When Taylor arrived at his office, he was told that he has until 5 p.m. today to clear out his personal belongings, and will not be allowed to re-enter until further direction is provided by the board.

The superintendent said he would fight the restrictions, claiming it would be impossible for him to prepare his defense without having access to his records and personal files in the office.

The meeting — which at times threatened to become chaotic — began shortly after 1 p.m., with more than 100 parents and other residents on hand.

However, no resident was allowed to participate in the proceedings, which were originally slated to take place in executive session but were conducted in public at Taylor's request.

Almost immediately following the vote to suspend Taylor, board member Carl Dawson — who read the resolution to suspend into the record — introduced a motion to name board personnel director Alonzo Kittrels as acting superintendent.

Kittrels declined comment on the appointment, indicating he wished to have time with his staff before

(Please turn to Page 12)

Wo



Newark Board of Education security guards stand in front of board meeting room to keep residents away from the board

School chief suspended

(Continued from Page One)

issuing a statement.

The selection brought angry responses from the audience, many of whom noted that Kittrels — formerly employed by City Hall — is not an educator but a personnel specialist.

Parents also expressed concern that Taylor was suspended before the formal hearing on the more than 100 charges leveled against him by the board. The 10-day period afforded to the superintendent to respond formally to the charges has not yet expired.

The two board members who opposed the suspension — Vicki Donaldson and George Branch, two of the three members who were not in favor of bringing charges against Taylor — vociferously denounced the board for its actions.

Donaldson charged that "vendetta and personal egos" had precipitated the suspension of Taylor and said the actions taken by the board yesterday will place the school system "in serious legal jeopardy."

Becoming very emotional at times during her statement, Donaldson charged the move against the superintendent was prompted by "money, and if not money, racism, and if not racism, fascism and if not fascism, then absolute insanity."

She accused the board of denying Taylor due process and asked why "this matter is so urgent that it must be voted on before the close of schools, before a hearing and before a date has even been set for a hearing."

Voicing an opinion supported by several of those present at the meeting, Donaldson accused Mayor Kenneth A. Gibson of being "the real culprit" by "silently concurring" with the board's actions.

Gibson has not commented on the issue of Taylor's competence or incompetence, even though the mayor was chiefly responsible for bringing the superintendent to the city at \$47,000-a-year — the highest salary paid to a municipal official.

Taylor called the board actions "an unfortunate attack upon the office" of superintendent.

Defending his actions as the school system's chief executive, Taylor said he has had "the single-minded goal of improving the quality and level of educational services" in the city.

Asserting that he is proud of his efforts, the superintendent said, "I am not only prepared, but I welcome and insist upon the opportunity to respond to each and every charge which has been leveled against my administration."

Taylor said at one point in the meeting — respond-

ing to Dawson's contention that the superintendent has yet to respond to the charges — that it would take "more than 10 days" to answer the lengthy allegations of faulty performance.

"The charges are unfounded, have no factual basis and are personally and professionally onerous to me and my administration. I have no intention of stepping down or ending my administration without an impartial and proper hearing. Without such a hearing, we forever endanger the likelihood that children and parents will receive the educational services to which they are entitled," Taylor said.

Both the vote to name Kittrels and the vote to adjourn the meeting were nearly drowned out by noise, and apparently some board members merely nodded in response to the issue when asked for a vote.

When the meeting adjourned, a recently formed citizens group — the Parents and Citizens for Quality Education, which on Tuesday launched a counter-campaign to retain Taylor — met to map strategy to fight the board's action.

Former board member Fred Means called the action "an assassination which does a disservice to everyone in the city," and Dr. E. Wyman Garrett, another former board member, accused the board of holding a "kangaroo court."

Garrett called for a mass movement, which would include a protest filed with State Education Commissioner Fred G. Burke, to retain Taylor.

"They're not giving him a fair trial," Garrett said, asking, "How can they sit in judgment on someone when they've already made up their minds?"

The parent group, which will begin its petition drive today, said the actions yesterday "again demonstrated the board's utter contempt" for the citizens of Newark.

While under suspension, Taylor will still draw his salary until the board votes formally to terminate him — if that is their decision.

Some of the superintendent's supporters further chastised the board "for saying the man is incompetent, but continuing to pay him with taxpayers' money."

The drift of the parents' thoughts seemed to be that Gibson is orchestrating Taylor's removal from the system from behind the scenes.

The parent group has threatened various kind of activities to prevent Taylor's removal, and failing that, have vowed to organize politically against those who want to remove the superintendent.

ADDRESSES SUPPORTERS

Taylor charges 'power grab'

By JAMES HARNEY JR.

Suspended Newark Schools Superintendent Stanley Taylor last night told a group of more than 200 of his supporters that his removal Thursday by the Board of Education was "nothing more than a blatant power grab."

In an emotional speech before a meeting of the Parents and Citizens for Quality Education held at the Central Ward Boys Club, Taylor said, "It's about time the people had a school board that represented the people, with members who don't belong to anybody's political machine."

"I have tried very hard to work together with the mayor, the city council and the board, but I think I bent over backwards a little too far," Taylor said. "In the end, I was victimized by what some people have referred to as 'the schoolhouse gang that wouldn't shoot straight'."

Taylor told the crowd, "It's not really important that I return as your superintendent. I'd like to, but even more important, we must rid the city of people who believe the main thing is power."

Speaking in support of the superintendent were two current board members, Vicki Donaldson and George Branch, two former board members, Fred Means and Dr. E. Wyman Garrett, and former Newark Municipal Judge Golden Johnson.

Donaldson said, "The reason Taylor was suspended without due process is the same reason a police state has developed on the board — money."

"Once people have been corrupted by money, all your pleadings and all your marching in front of City Hall won't change their decisions," she said, naming board members Charles Bell and Elena Scambio and board President Carl Dawson as "the real culprits" behind the suspension.

Branch praised Taylor for doing "a good job, an honest job," and for bringing "new ideas and changes to the school system, and for proposing that school board officials be accountable for their actions."

"I have not always agreed with the superintendent, but it's wrong to bring a man into the job and then assassinate him. In the end, the board was acting as the superintendent instead of letting the man do his job."

Johnson told the audience she was "tired of seeing politics being played with the children of Newark," a sentiment echoed by Donaldson, who urged the citizens "to let Byrne and Bateman know that no one will get the Newark vote without being prepared to deal with education in the city."

Members of the citizens' group marched outside City Hall yesterday to voice their displeasure with the suspension. They plan to do so again today and will meet with Newark Mayor Kenneth A. Gibson at City Hall tonight at 6 to discuss the situation.

Taylor, who will continue to draw his \$47,000-a-year salary until final action is taken by the board, has been charged with administrative malfeasance, nonfeasance and misfeasance, and incompetence.

I Press International
uto-body shop
Pa.; did. As
it certainly
nd fancy of
man checks to

ates

School budget help offered

The Nutley Board of Education got some good news last night.

It was informed that a new group in town has been formed, and is anxious to help the board get the next school budget approved by the voters.

James O. ... for the Nutley Comm...

A resolution was adopted empowering and encouraging the police to enforce the recent anti-loitering ordinance on school grounds.

Board of Commissioners last month adopted ... in all public parks a ... sunrise.

STAK LEVER
June 29, 1977

Gibson draws fire on Taylor

By JAMES HARNEY JR.

Newark Mayor Kenneth A. Gibson angered more than 200 citizens last night when he refused to inject himself into the controversy that has arisen following the suspension last Thursday of Executive Schools Superintendent Stanley Taylor.

The audience jammed a community meeting in City Council Chambers and listened for two hours as 18 speakers presented arguments in support of Taylor's reinstatement and right to "due process."

They appeared flabbergasted when the mayor took less than 15 minutes to answer their demands.

The crowd was annoyed even further when the mayor announced that earlier in the day he had reappointed Board President Carl Dawson, who has been criticized as the instigator of Taylor's removal.

"I don't believe it. He just told us that he doesn't care what we think," said an astonished parent as Gibson made his way out of the chambers.

Another angry citizen said the mayor "doesn't care, he's not running until next year, and by then, this will be forgotten."

Gibson said that, despite the fact that the Parents and Citizens for Quality Education had collected 800 petition signatures calling for the recall of the nine-member board of education, "I question whether board members can be recalled merely by the signing of a petition."

"The question of recall is a legal one," he said. "I think that a board member can be recalled for cause by the state board of education through the county superintendent if brought up on administrative charges, but you should consult a lawyer on the procedure."

One of Taylor's supporters, Newark

(Please turn to Page 11)

Gibson draws fire on Taylor

(Continued from Page One)

Board of Education member Vicki Donaldson, conceded the group was aware that Gibson "cannot legally remove board members. But we know that through the influence of your office you can exert the necessary power."

Donaldson said she was not afraid of being removed because "the chronology of events would indicate that this board is unable to serve the city of Newark."

...

In addition to demanding that Gibson assure them that Taylor would be given due process and that the board would be recalled, several speakers demanded that Taylor be reinstated so he can participate in the appointment of instructional personnel for the coming school year, a process that must be completed by Friday.

Councilman-at-large Donald Tucker warned that Taylor's replacement, board personnel director Alonzo Kittrels, "may not have the qualifications necessary to make the decisions on teacher appointments."

Gibson said after the meeting that the state board of education was in the process of authorizing Kittrels to make the appointments.

Ramon Rivera, director of La Casa de Don Pedro, an Hispanic youth organization, called for Taylor's reinstatement because "he has meant access for the Hispanic community to the educational system."

A number of speakers demanded that the mayor punish the board for the "gangsterism" they felt was displayed in Taylor's dismissal.

James Benjamin, president of the union that represents cafeteria workers in the schools, castigated "power-hungry individuals who seem to assume that nothing and no one can stand in their way."

Board Community Relations Director Nathaniel Potts, board member George Blanch and Rev. Ralph Grant, a former city official, concurred, stressing that it was essential that the superintendent be allowed "his day in court."

...

Gibson told the audience that he "assumed that Mr. Taylor would have his day in court, and I assume it will be soon."

He later said the citizens are not aware that Taylor's contract calls for a board hearing on the charges and that such a hearing must be held within 10 days of his suspension.

Tucker said that he was aware of the hearing provision in the contract but said that the board was "in effect, setting itself up as judge, jury and prosecutor, and acting as a kangaroo court."

The audience applauded the remarks of each speaker, but reserved its most thunderous ovations for those made by Mrs. Beatrice Lang, a member of the community group, who said, "Mr. Taylor was stripped of his dignity because he said there is pride in Newark, but the pride cannot yet vote. We must first teach them to read."



**Kenneth Gibson
Renames Dawson**



**Rev. Ralph Grant
Calls for day in court**



BOARD OF EDUCATION
OFFICE OF THE
EXECUTIVE SUPERINTENDENT
NEWARK, NEW JERSEY 07102

STANLEY TAYLOR
EXECUTIVE SUPERINTENDENT

February 25, 1977

Dear Teacher:

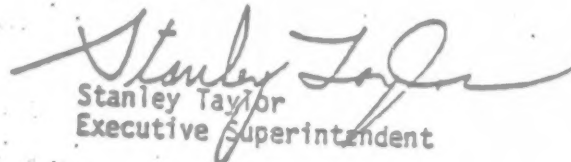
We ask for your assistance in completing the attached survey which seeks to examine current utilization of instructional radio within our schools. This survey is a vital component in a study that will ultimately assess needs which audio instruction can fulfill.

Our school radio station has long served the students and teachers of this system, and this administration looks to you, the teacher, for direction on how we can expand its services. Your candid response in the determination of utilization and efficiency factors for audio instruction is greatly appreciated.

Please return the completed questionnaire to your principal's office no later than Thursday, March 3.

Thank you very much for your help.

Sincerely,


Stanley Taylor
Executive Superintendent

ST:dch

NEWARK RADIO PROJECT Pre-Project Assessment

Teacher's Name: _____ Date: _____

School: _____ Grade Level(s): _____

This survey should take approximately 10 minutes to complete. Your contribution to the Newark Radio Project is appreciated.

1. Have you utilized WBGO's instructional radio service during this academic year?
- | | |
|------------------------------|------------|
| ☐ Yes | <u>212</u> |
| ☐ No | <u>195</u> |

2. Have you ever utilized WBGO's instructional radio services?
- | | |
|------------------------------|------------|
| ☐ Yes | <u>291</u> |
| ☐ No | <u>89</u> |

(IF YOUR ANSWERS TO THE ABOVE QUESTIONS WERE 'NO' PLEASE MOVE TO QUESTION # 12.)

3. How does your current utilization of WBGO's instructional radio services compare to three years ago?
- | | | |
|---|-----------|------------|
| ☐ More | <u>57</u> | |
| ☐ Less | <u>80</u> | |
| ☐ About the same | | <u>106</u> |
| ☐ Does not apply | | <u>35</u> |

4. Describe your mode of use of WBGO's instructional radio services and the number of minutes you use each mode each week.

Classroom Radio Receivers

- | | |
|--|-----------|
| ☐ 0 mins | <u>31</u> |
| ☐ 1-15 mins/wk | <u>78</u> |
| ☐ 15-30 mins/wk | <u>67</u> |
| ☐ 30-45 mins/wk | <u>26</u> |
| ☐ 45 mins-1 hr/wk | <u>17</u> |
| ☐ 1 hr or more/wk | <u>10</u> |

Cassette or Reel-to-Reel Copies of Programs

- | | |
|--|-----------|
| ☐ 0 mins | <u>81</u> |
| ☐ 1-15 mins/wk | <u>3</u> |
| ☐ 15-30 mins/wk | <u>6</u> |
| ☐ 30-45 mins/wk | <u>1</u> |
| ☐ 45 mins-1 hr/wk | <u>3</u> |
| ☐ 1 hr or more/wk | <u>1</u> |

Intercom System

- | | |
|--|-----------|
| ☐ 0 mins | <u>84</u> |
| ☐ 1-15 mins/wk | <u>30</u> |
| ☐ 15-30 mins/wk | <u>10</u> |
| ☐ 30-45 mins/wk | <u>2</u> |
| ☐ 45 mins-1 hr/wk | <u>1</u> |
| ☐ 1 hr or more/wk | <u>0</u> |

5. How often is radio equipment available when you need it?

☐ Always 149
☐ Most of the time 69
☐ Some of the time 34
☐ Never 12

6. Circle the number in the scale which appropriately describes each of the following statements regarding your use of WBGO's instructional radio services.

	Always	Most of the time	Some of the time	Never
A. I use WBGO's programming in a supplemental manner when programs are directly related to classroom study.	<u>37</u> 1	<u>77</u> 2	<u>140</u> 3	<u>12</u> 4
B. I use WBGO's programming because it serves as the only source of information in a given area of study.	<u>5</u> 1	<u>14</u> 2	<u>88</u> 3	<u>114</u> 4
C. I use WBGO's programming in an enrichment manner wherein programs are not related to primary learning objectives.	<u>9</u> 1	<u>32</u> 2	<u>158</u> 3	<u>34</u> 4

7. Describe the location(s) where students listen to WBGO.

☐ Classroom 267
☐ Media Center/
Library 2

8. Select the groupings used for listening to WBGO radio

☐ Large group listening 254
☐ Individual student listening with headphones 12
☐ Small group listening based on interests 23
☐ Small group listening based on ability level. 20

9. Teacher's Guides

Listed below are some statements about various aspects of WBGO's guides. Please indicate your reaction to each by circling the appropriate number.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
A. WBGO teacher's guides are promptly delivered:	<u>39</u> 1	<u>131</u> 2	<u>56</u> 3	<u>27</u> 4	<u>9</u> 5

9. continued

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
B. WBGO teacher's guides offer helpful suggestions in preparing for broadcasts.	<u>49</u> 1	<u>170</u> 2	<u>28</u> 3	<u>9</u> 4	<u>0</u> 5
C. WBGO teacher's guides offer helpful suggestions in following-up broadcasts.	<u>33</u> 1	<u>147</u> 2	<u>53</u> 3	<u>19</u> 4	<u>1</u> 5
D. WBGO guides clearly outline broadcast schedules.	<u>63</u> 1	<u>164</u> 2	<u>23</u> 3	<u>7</u> 4	<u>0</u> 5
E. WBGO guides clearly describe the educational objectives of broadcast offerings.	<u>34</u> 1	<u>150</u> 2	<u>57</u> 3	<u>10</u> 4	<u>0</u> 5

10. Value Perceptions

Listed below are some statements about the effect of audio instruction on students. Circle the response that best describes your reaction.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
A. WBGO's instructional radio services improve cognitive skills in students.	<u>19</u> 1	<u>143</u> 2	<u>86</u> 3	<u>6</u> 4	<u>1</u> 5
B. WBGO's instructional radio services make substantial improvements in student attitudes.	<u>9</u> 1	<u>91</u> 2	<u>145</u> 3	<u>11</u> 4	<u>1</u> 5
C. WBGO's instructional radio holds the interest of students.	<u>19</u> 1	<u>163</u> 2	<u>65</u> 3	<u>12</u> 4	<u>1</u> 5
D. Active student participation is included in WBGO programs.	<u>25</u> 1	<u>134</u> 2	<u>68</u> 3	<u>19</u> 4	<u>1</u> 5
E. WBGO's instructional radio programs are easily integrated with classroom activities.	<u>28</u> 1	<u>165</u> 2	<u>56</u> 3	<u>12</u> 4	<u>1</u> 5

11. Teacher involvement in WBGO's instructional radio services.

- A. Which describes the level of teacher involvement in WBGO's program development?
- ☐ Often 100
☐ Seldom 122
☐ Never 32

11. continued

B. How important do you consider teacher input into WBGO's program development?

☐ Very important 150
☐ Moderately important 101
☐ Neither 10
☐ Moderately unimportant 5
☐ Unimportant 1

C. Which describes your contributions to the development of WBGO's instructional programs?

☐ Survey Comments 97
☐ Advisory Comments/ Participation 24
☐ Discussion with radio staff 20
☐ Does not apply 114
☐ Other (specify) 5

(Participation in

Spelldowns)

12. The following conditions might facilitate or hinder the use of WBGO's instructional radio services. In the left column place an "x" in front of the factors which have been most facilitative to your use of WBGO. In the right column, place an "x" after the factors which have most hindered your use of WBGO.

Facilitators

(check all that apply)

TOTAL

ERS
NON-UTILIZERS

15

203

11

148

21

258

17

208

20

218

16

195

11

138

A. Equipment is/is not available and in good repair when needed.

B. Broadcast schedules are/are not convenient.

C. Reception is/is not good.

D. There are/are not suitable programs available.

E. There is/is not much educational benefit to students.

F. Information regarding WBGO has/has not been adequate.

G. Other teachers have/have not recommended WBGO's programs.

Hindrances

(check all that apply)

TOTAL

107

165

54

72

35

80

107

UTILIZERS

71

125

43

48

23

55

82

NON-
UTILIZERS

36

40

11

24

12

25

25

UTILIZERS	NON-UTILIZERS	12. continued TOTAL		TOTAL	UTILIZERS	NON-UTILIZERS
201	23	224	H. The principal has/has not encouraged utilization of WBGO's instructional radio services.	46	31	15
136	11	147	I. Curriculum consultants have/have not encouraged use of WBGO's instructional radio services.	100	76	24

13. WBGO's instructional radio services look to teachers for future directions. Please share your comments and recommendations regarding audio instruction in the classroom.

Pre-Project participants provided 197 written responses to this item.

Thank you for your assistance!

WHEN YOU HAVE COMPLETED THE QUESTIONNAIRE, PLEASE PUT IT IN THE ATTACHED ENVELOPE AND RETURN IT TO THE PRINCIPAL'S OFFICE.

GRADE BREAKDOWN OF PRE-PROJECT ASSESSMENT PARTICIPANTS:

<u>Grade Level</u>	<u>Utilizers</u>	<u>Non-Utilizers</u>
Pre-K	2	2
K	23	6
1	36	4
2	36	8
3	37	5
4	38	6
5	35	8
6	32	5
7	19	9
8	22	6
9	2	0
Library	2	0
Special Education	2	0
Emotionally Disturbed	2	0

NOTE: The above figures do not reflect the total number of pre-project participants due to the fact that many respondents failed to provide the requested grade level information. Junior High School grade analysis was difficult in many cases due to multi-level teaching assignments.

Appendix B

Responses to Question 13 From those answering No to Utilization Question

Although there is a guide to programs being presented, maybe a more informative and up to date schedule should be available. Something like a monthly newsletter. (Mt. Vernon)

I have not implemented WBGO and therefore am not qualified to comment. (14th Avenue)

My ESL program was full and crowded this year. I utilized filmstrips and records. Next year, I shall look up WBGO's English-As-A-Second-Language programs that are constructed for primary grades 1st to 4th.

WBGO is a valuable technique for our Newark children. (14th Avenue)

The educational objectives of WBGO should be more clearly stated. (13th Avenue)

I have never used the WBGO instructional service - so I therefore cannot give any positive or negative comments regarding the radio services. (South Street)

The idea of an added media is good. However with all the subject areas we must cover, the time element is a factor. We need more information concerning programs. (South Street)

Each classroom should have a radio available at all times so that your schedule can be flexible enough to include WBGO broadcasts. According to my unique teaching situation where every period is structured by time and subject material, I cannot possible use or implement these programs. I would, however, like to include them in my teaching plans as well as the use of a TV for educational programs. (Ridge Street School)

This grade (6) might not derive enough benefit from these radio programs. (Ridge Street)

I would like to see more information regarding the programs available. There should be more cultural and supplemental material taught. For example, for the Portuguese community there should be more Portuguese cultural programs. (Lafayette St.)

I found WBGO helpful, instructional quite often apropos to material I have used in class in previous years. However, radios are no longer available to us due to theft. (Elliot Street)

Although in the past I haven't used WBGO, I hope there are no intentions of discontinuing the WBGO's program. (Clinton Avenue)

Time factor makes it difficult to utilize equipment. Activities also a factor in under utilization of radio. Not enough information on special program to allow planning for its use. (Camden Middle)

Responses to Question 13 From Those Answering No to Utilization Question

Because I teach reading, I would appreciate supplementary broadcasting in that area; ex: basic skills, review, listening exercises for comprehension etc. - with appropriate interest levels. (Camden Middle)

If more information regarding programming was available and the programs were more suitable to my curriculum. (Broadway Jr. High)

Sometimes the programs are longer than the class period, so the class does not receive the full benefit of the program. Listings of the programs should be made available to the students so they can make some sort of gesture towards one or more of the programs. (Broadway Jr.)

The station offers a good selection of programs. I make use of radio for special activities. However this is rare because many times it is difficult to find programs to correlate with materials being used, and all the time needed. (Avon Avenue)

There are many constructive avenues of learning offered in our Newark School System, WBGO's instructional services included. However, there is not adequate time to effectively plan for these educational aides. Time for thorough planning would certainly effect T and E in many ways. I have 3 eighth grade English (Language) classes and one Reading class. Presently, I have two (2) prep. week, providing there isn't an interruption, and my cores run from teaching to counseling, including paper work involved ... (Ridge Street)

I make more use of NJPTV Children's attention can be held long with audio & visual stimulation. (Lafayette Street)

We need more radios. (Elliott Street)

Encouragement now requires an active measure for coordination. (Camden Middle)

Good teachers rather than your appointees! (no school listed)

Textbooks and programs (classroom) do not fit to the school curriculum. (Camden Middle)

WBGO needs more educational views about whats going on in today's society and not what happened yesterday. WBGO needs more recognition (?). (Camden Middle)

This services were never used in our school, maybe because of the over crowdedness and the unsuitability to use such aid in teaching large size classes as it is the case in our school. Thank you. (Broadway Jr.)

Responses to Question 13 From Those Answering No to Utilization Question

It would probably be difficult to use radio as an instructional aid in mathematics. (Broadway Jr.)

WBGO's instructional radio services should offer more in the area of current business and consumer priorities to supplement classroom activities. Career information should become a viable part of programming in the various subject areas. Competitive activities would do a great deal to motivate Newark's youth. Activities of a competitive nature could include such things as writing scripts for various types of advertisements, or research into business practices or some consumer problem that the student may have experienced and solved. I might mention that I am a business teacher which is the reason for my suggestion being business oriented. (Broadway Jr.)

Broadcast schedules are not convenient for all 5 classes. Schedule of programs should be made available to teacher. ((Broadway Jr.)

I am not familiar with the topic mentioned above. However, it does sound interesting and I would be willing to explore the usefulness of WBGO radio instructional service as an aid for my students. I would like to have additional information concerning the topic if possible. (Broadway Jr.)

I have never used it for lack of familiarity or promotion. (Broadway Jr.)

I would like to have programs designed to meet the Junior High class period schedule dealing with the teaching of English as a second language and addressing programming to specific needs due to the wide range of language levels. (Broadway Jr.)

The classroom teacher should have greater input. With more uniform schedule (city-wide) mandatory usage at specified times is possible, making uniformity of instruction possible. (Broadway JR.)



BOARD OF EDUCATION
OFFICE OF THE
EXECUTIVE SUPERINTENDENT
NEWARK, NEW JERSEY 07102

STANLEY TAYLOR
EXECUTIVE SUPERINTENDENT

March 11, 1977

Dear Principal:

Several weeks ago, my office distributed a questionnaire to the teachers in your school which was designed to measure current utilization of audio instruction. We received a good response and I want to thank you for your help.

Several teachers in your school have been selected at random to participate in a further phase of the project. These teachers are _____

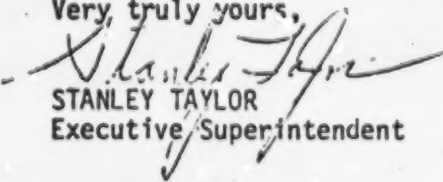
Each of them will be given a radio set and a cassette machine for the duration of this semester and asked to compare and evaluate the advantages and problems of each delivery mode for their own particular utilization of audio instruction. There are no right or wrong answers. We merely want to find out which equipment you and the teachers consider most reliable, effective and convenient.

Since the teachers will be asked to use the audio materials as part of their normal classroom routine, the project should not detract from or interfere with their normal responsibilities.

Sometime next week each of the teachers mentioned above will be asked to attend a short, one-hour seminar after school at the Audio Visual Center.

Thank you for your cooperation.

Very truly yours,


STANLEY TAYLOR
Executive Superintendent

ST:mv

BOARD OF EDUCATION
DEPARTMENT OF LIBRARIES AND AUDIOVISUAL EDUCATION
15 STATE STREET
NEWARK, NEW JERSEY 07104

RHODA S. APPEL
DIRECTOR

HUBERT E. CRAWFORD
SUPERVISOR OF AUDIOVISUAL EDUCATION

Stanley Taylor
Executive Superintendent of Schools

March 11, 1977

Dear

Several weeks ago you were asked by the Executive Superintendent to complete a questionnaire designed to measure current utilization of audio instruction in our school system. As Mr. Taylor mentioned in his letter, the questionnaire was distributed as part of a project being undertaken in conjunction with his office to study methods of providing additional audio instruction to classrooms in more efficient ways.

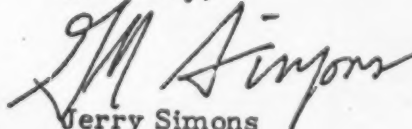
We would like to have your participation in a further phase of the project. Understanding the critical demands of our profession, I can assure you that the time expended on the project will be minimal and will not detract from your teaching responsibilities. Actual project implementation will occur within the framework of classroom activities. Your principal has also been notified by the Executive Superintendent of the project and its activities.

Your involvement in the radio project will be explained in a one hour seminar to be held on _____ at _____ in _____. Should an unavoidable conflict arise, please call me at 733-7280 to arrange a make-up seminar.

The Project will seek to examine the distribution and utilization of audio instruction through our school radio station WBGO. The scope of this project is far-reaching and educators and broadcasters throughout the nation will be looking to Newark teachers for their assessment of audio materials and equipment.

Your participation in this significant project is appreciated.

Sincerely,


Jerry Simons
Coordinator

NEWARK RADIO PROJECT Post-Project Assessment

SCHOOL: _____ GRADE LEVEL(S): _____

Please complete all questions.

1. Describe your use of instructional radio programming prior to this project.
(53 total respondents)

30%	☐ None (16)
38%	☐ Occasionally (20)
6%	☐ 1-15 mins. per week (3)
12%	☐ 15-30 mins. per week (7)
4%	☐ 30-45 mins. per week (2)
4%	☐ 45-60 mins. per week (2)
6%	☐ One hour or more (3)
2. How did you utilize audio instruction programming during this project?
(82 total respondents)

53%	☐ Cassettes (43)
37%	☐ Radio, Channel 1 (30)
10%	☐ Radio, Channel 2 (9)
	☐ Intercom
3. Describe the frequency of your use of audio instruction during this project.
(48 total respondents)

10%	☐ 1-15 mins. per week (5)
25%	☐ 15-30 mins. per week (12)
21%	☐ 30-45 mins. per week (10)
10%	☐ 45-60 mins. per week (5)
34%	☐ One hour or more (16)
4. What type of groupings did you choose for the utilization of audio instruction?
(74 total respondents)

64%	☐ Large group listening (47)
15%	☐ Individual student(s) (11)
16%	☐ Listening with headphones
	☐ Small group listening based on interests (12)
5%	☐ Small group listening based on ability level (4)
5. If you utilized listening centers during this project, how would you rate their instructional effectiveness with students?
(38 total respondents)

34%	☐ Very effective (13)
34%	☐ Effective (13)
	☐ Ineffective
	☐ Very ineffective
32%	☐ Does not apply (12)
6. What type of pupil(s) have best responded to audio instruction during this project?
(78 total respondents)

10%	☐ The slow learner (8)
18%	☐ the underachiever (14)
27%	☐ The average achiever in academic ability (21)
15%	☐ The above-average in academic ability (12)
3%	☐ The academically gifted (2)
1%	☐ The mentally handicapped (1)
12%	☐ The visually handicapped (9)
14%	☐ All of the above (9)
	☐ Pupil capability is not a factor (11)

7. Circle the number in the scale which appropriately describes each of the following statements regarding your use of instructional radio services.

- A. I use the programming in a supplemental manner when programs are directly related to classroom study.
(50 total respondents).

Always	Most of the time	Some of the time	Never
1	2	3	4
14%	48%	34%	4%
(7)	(24)	(17)	(2)

B. I use the programming because it serves as the only source of information in a given area of study. (45 total respondents)	(4) 9% 1	(7) 16% 2	(18) 40% 3	(16) 35% 4
C. I use the programming in an enrichment manner wherein programs are not related to primary learning objectives. (47 total respondents).	(7) 15% 1	(13) 28% 2	(22) 47% 3	(5) 10% 4

8. Listed below are some statements about the effect of this project's audio instruction on students. Circle the response that best describes your reaction.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
A. Audio instruction improves cognitive skills in students (46 total respondents)	26% 1 (12)	61% 2 (28)	13% 3 (6)	4	5
B. Audio instruction makes substantial improvements in student attitudes. (47 total respondents)	19% 1 (9)	60% 2 (28)	19% 3 (9)	2% 4 (1)	5
C. Audio instruction holds the interest of students. (50 total respondents)	20% 1 (10)	62% 2 (31)	18% 3 (9)	4	5
D. Active student participation is included in audio programs. (48 total respondents)	23% 1 (11)	56% 2 (27)	15% 3 (7)	6% 4 (3)	5
E. Audio programs are easily integrated with classroom activities. (48 total respondents)	35% 1 (17)	48% 2 (23)	10% 3 (5)	7% 4 (3)	5

9. Did you undertake any activities before you used audio instruction in your classroom? (39 total respondents)
 What were they?

74% ☐ Yes (29)
 26% ☐ No (10)

Did you undertake any activities after you used audio instruction in your classroom? (37 total respondents)
 What were they?

81% ☐ Yes (30)
 19% ☐ No (7)

10. Listed below are some statements about various aspects of the teacher's guides. Please indicate your reaction to each by circling the appropriate number.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
A. WBGO's teacher's guides offer helpful suggestions in preparing for broadcasts. (45 total respondents)	18% 1 (8)	64% 2 (29)	16% 3 (7)	2% 4 (1)	5
B. WBGO's teacher's guides offer helpful suggestions in following-up broadcasts. (44 total respondents)	16% 1 (7)	41% 2 (18)	34% 3 (15)	9% 4 (4)	5

10. (con't)

C. WBGD's teacher's guides clearly outline broadcast schedules (45)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
40%	42%	11%	7%	
1 (18)	2 (19)	3 (11)	4 (7)	5

D. WBGD's guides clearly describe the educational objectives of broadcast offerings. (47)

15%	53%	26%	6%	
1 (7)	2 (25)	3 (12)	4 (3)	5

11: If you utilized audio instruction via cassettes, please complete the following questions:

A. What factors prompted you to choose cassettes for audio instruction? (141 total responses)

6%	☐ Student familiarity with cassettes (8)
24%	☐ Ease of scheduling (33)
21%	☐ Availability of equipment (26)
18%	☐ Ease of operation (26)
12%	☐ Expanded offerings (17)
14%	☐ Potential for individualization (20)
5%	☐ Other: (7)

B. Please indicate your reaction to the following statements regarding cassette delivery of audio instruction during this project.

(1) Cassettes were delivered promptly (41)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
51%	44%	5%		
1 (21)	2 (18)	3 (2)	4	5

(2) The sound quality was adequate (43)

1	2	3	4	5
44% (19)	49% (21)	5% (2)	2% (1)	

(3) Student reaction to cassettes was favorable (41)

1	2	3	4	5
51% (21)	42% (17)	7% (3)		

(4) Use of the cassette recorder was handled with ease (43)

1	2	3	4	5
58% (25)	42% (18)			

(5) Storage of cassettes and equipment posed little or no problem (43)

1	2	3	4	5
56% (24)	33% (14)	2% (1)	2% (1)	7%

(6) I enjoyed using cassettes for classroom instruction (43)

1	2	3	4	5
67% (29)	31% (13)	2% (1)		

C. Describe any problems you encountered with cassette use.

D. Describe the major advantages which you perceive in the use of audio instruction through cassettes.

11. (con't)

E. List the titles of the series you utilized during the audio instruction project.

F. What factors prompted your selection of the above series?
(115 total responses)

11%	☐	Quality of series (13)
35%	☐	Student needs (40)
23.5%	☐	Curriculum needs (27)
23.5%	☐	Student interests (27)
4%	☐	Teacher's Guide (5)
2%	☐	Encouragement from colleagues (2)
1%	☐	Other: (1)

12. If you utilized audio instruction via radio, please complete the following questions:

A. What factors prompted you to chose radio receivers for audio instruction?
(79 total responses)

13%	☐	Student familiarity With radio (10)
9%	☐	Ease of scheduling (7)
32%	☐	Availability of equipment (18)
22%	☐	Ease of operation (18)
17%	☐	Quality of programming (10)
6%	☐	Potential for individualization (5)
1%	☐	Other: (1)

B. Please indicate your reaction to the following statements regarding radio delivery of audio instruction during this project. (Circle your reponse.)

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(1) The sound quality was adequate (37)	41% 1(15)	57% 2(21)	3	2% 4(1)	5
(2) Student reaction to radio was favorable (36)	44% 1(6)	47% 2(17)	9% 3(3)	4	5
(3) Use of radio was handled with ease (35)	46% 1(16)	51% 2(18)	3% 3(1)	8	5
(4) Storage of equipment posed little or no problem (38)	39% 1(15)	53% 2(20)	3	5% 4(2)	5
(5) There appeared to be little or no difference in sound quality between channel one and channel two (30)	17% 1(5)	35% 2(10)	30% 3(9)	4 27% (8)	5

12. (con't)

(6) The radio I utilized compared favorably with others I have used in the past in the classroom.
(32)

(7) I enjoyed using a one-station radio for classroom audio instruction
(34)

Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
31% 1 (10)	44% 2 (14)	13% 3 (4)	9% 4 (3)	3% 5 (1)
44% 1 (15)	41% 2 (14)	9% 3 (3)	6% 4 (2)	5

C. Describe any problems you encountered with use of radio in your classroom.

D. Describe the major advantages which you perceive in the use of audio instruction through radio.

E. List the titles of the series you utilized during the audio instruction project.

F. What factors prompted your selection of the above series? (85)

- ☒ 20% Quality of series (11)
- ☒ 27% Student needs (23)
- ☒ 17% Curriculum needs (15)
- ☒ 26% Student interests (22)
- ☒ 5% Teacher's Guide (4)
- ☒ 4% Encouragement from colleagues (3)
- ☐ 1% Other: (1)

13. If you utilized audio instruction via intercom, please complete the following questions:

A. What factors prompted you to chose intercom delivery of audio instruction?
(2)

- ☒ 100% Student familiarity with the intercom (2)
- ☐ Ease of scheduling
- ☐ Ease of operation
- ☐ Quality of programming
- ☐ Other:

13. (con't)

B. Please indicate your reaction to the following statements regarding intercom delivery of audio instruction during this project. Circle your response.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(1) The sound quality was adequate (4)	1	25% 2 (2)	75% 3 (3)	4	5
(2) Student reaction to intercom delivery of instruction was favorable (4)	1	25% 2 (1)	50% 3 (2)	25% 4 (1)	5
(3) Coordination of intercom delivery through the school office was handled with ease (4)	1	25% 2 (1)	75% 3 (3)	4	5
(4) Interruptions of intercom lessons was minimal (4)	1	50% 2 (2)	50% 3 (2)	4	5
(5) I enjoyed using the intercom for classroom audio instruction (4)	25% 1 (1)	2	50% 3 (2)	25% 4 (1)	5

14. Please describe your involvement and reaction to the pre-project seminar.

A. I attended the pre-project seminar (44) 61% ☐ Yes (27)
39% ☐ No (17)

B. Listed below are some statements about various aspects of the pre-project seminar. Please indicate your reaction to each by circling the appropriate response.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
(1) The objectives of the project were explained (30)	37% 1 (11)	60% 2 (18)	3% 3 (1)	4	5
(2) The programming available through WBGO Radio was adequately reviewed (29)	48% 1 (13)	40% 2 (12)	6% 3 (2)	6% 4 (2)	5
(3) Equipment was adequately explained (30)	50% 1 (15)	27% 2 (14)	33% 3 (11)	4	5
(4) I felt favorable towards the project at the completion of the seminar. (30)	53% 1 (16)	40% 2 (12)	7% 3 (2)	4	5

15. Based upon your exposure to audio instruction during this project, would you use it during the next school year? (45)

100% ☐ Yes 45
☐ No

16. If not, why?

(NONE)

- ☐ Equipment is difficult to secure and maintain
- ☐ Broadcast schedules are inconvenient
- ☐ Time does not permit
- ☐ Reception is not good
- ☐ Programming does not suit the needs of student
- ☐ Programs do not hold interest of students.

17. What suggestions would you offer for improvement of WBGO's instructional radio service?

THANK YOU FOR YOUR VALUABLE INPUT INTO THE NEWARK
AUDIO INSTRUCTION PROJECT.

NEWARK RADIO PROJECT
Post-Project Assessment
Principal's Form

I. Rate the overall effectiveness of the delivery systems used by the teachers in your school. Circle your response on the scale.

	Very 1 Effective	Effective 2	Neither 3 Agree Nor Disagree	Ineffective 4	Very 5 Ineffective
A. Cassettes	(6) 46%	(5) 38%	(2) 16%		
B. Radio	(5) 42%	(7) 58%			
C. Intercom	(4) 33%	(3) 25%	(2) 12%	(3) 25%	

NEWARK PUBLIC RADIO, INC.

7 BROAD STREET
NEWARK, NEW JERSEY 07102
(1) 622-6563

TO: Pat A. Conner
FROM: Jesse Thomas
RE: Overview of My Duties and Responsibilities
DATE: June 23, 1977

I considered my two main duties to be: (1) to instill confidence in the teachers as it related to the equipment and its operation; and (2) to assure the teachers that there were no reasons why they should feel threatened by the introduction of this new teaching aid.

My main task while the project was in operation was to supply materials to the teachers and make sure the equipment was in proper working order.

The two major problems I encountered during the project were: (1) copyright restrictions which prohibited us from dubbing some materials of WBGO; and (2) procedures imposed by WBGO that prohibited us from dubbing programs that had not been broadcast this semester.

I would like to make three recommendations for future activities: (1) that a week long seminar be held to introduce all participants to the audio instruction concept and its goals; (2) that teachers be given an opportunity to periodically preview tapes in order to help them make a better assessment of materials suitable for their classes; and (3) that the librarian be used as a liaison person in the future.

The goal of this study was to ascertain the relative performance between the FM main channel and the SCA subchannel as recieved by a commercially available table model receiver.

The project was not intended to provide a highly detailed scientific study of SCA reception and the many factors affecting this reception, but rather to present data demonstrating the difference noted in a normal SCA situation. Considerable study could be undertaken concerning SCA and the factors contributing to reception, but this magnitude of investigation was well beyond the budget and time limitations of the overall project of which this is but a small part.

To this end output level and harmonic distortion were tabulated for both main channel and SCA subchannel at spot frequencies from 100 Hz to 5,000 Hz at four locations in the city roughly spproximating the major points of the compass and at the extreme boundries of the school district. The transmitter was modulated at 50% for both main and sub channel (50% + injection for main channel) and all normal audio processing equipment was left in the chain. Receiver level was calibrated at 1,000 Hz at each location and the tabular data has been normalized to this reference as presented in the addenda.

This restricted frequency range places serious doubt on the usefulness of SCA for the transmission of music. The main channel response was only marginally superior to the SCA subchannel, but it did have extended upper range frequency response.

Concern over this lack of high end response led to further investigation. Similar test measurements were made utilizing a SCA modulation monitor (a high quality SCA receiver). The results as presented in the addenda revealed that the SCA subchannel possessed a more realistic response (+0,-2dB) in the active range (100 Hz to 5,000 Hz) with rapid drop off above that. The conclusion, after testing several different receivers, is that the limiting factor in the reception of the full bandwidth of SCA is the receiver and not the subchannel restrictions.

Distortion on the SCA subchannel was within acceptable limits in the North and West directions, but rose in the South and East schools. Since SCA is more sensitive to multipath induced distortion, this increase is attributed to the proximity of a large hospital building to Maple Annex School shielding the antenna from the transmitter and considerable

heavy industry and iron works in the vicinity of Ann Street School. In cases such as Maple Annex and Ann Street a properly installed and oriented external antenna can considerably reduce the multipath conditions and greatly improve reception.

In sum the test results indicate that distribution of material via voice on SCA is not materially less effective than main channel. Reception, while perhaps more critical in severe multipath areas, is as good as main channel as far as FM quieting and signal to noise (S/N) are concerned.

The "Educational" receiver, however, considerably restricted the reception of the entire SCA bandwidth as transmitted by the station. Perhaps increased awareness on the part of the various manufacturers of this equipment can bring about a superior receiver for expanded usage.

NORTHMAIN
CHANNELSCA
CHANNEL

FREQ	LEVEL	DISTORTION
100	+0.25dB	1.25%
250	+0.25	1.25
500	+0.5	1.25
1000	0.0	1.25
2000	-1.0	1.5
5000	-6.5	2.7

S/N = 34 dB

LEVEL	DISTORTION
+4.5 dB	1.25%
+4.5	1.45
+3.0	2.0
0.0	2.5
-4.5	1.7
(-19)	---

S/N = 48 dB

WEST

100	+0.2	1.6
250	+0.5	1.5
500	+0.7	1.5
1000	0.0	1.8
2000	-1.25	2.2
5000	-6.5	4.0

S/N = 33 dB

+3.0	1.9
+3.0	1.9
+2.0	1.2
0.0	1.6
-5.0	2.8
-----	-----

S/N = 42 dB

SOUTH

100	0.0	1.8
250	+0.2	2.2
500	+0.2	2.0
1000	0.0	2.25
2000	-1.0	3.0
5000	-6.5	8.0

S/N = 30 dB

+3.5	3.5
+3.5	6.5
+2.5	7.0
0.0	10.0
-4.5	11.0%
-----	-----

S/N = 34 dB

EAST

100	0.0	1.5
250	+0.5	1.75
500	+0.5	2.0
1000	0.0	2.25
2000	-1.5	3.0
5000	-6.5	6.5

S/N = 35 dB

+4.0	8.0
+4.0	8.0
+3.0	10.0
0.0	10.0
-1.0	10.0
-----	-----

S/N = 23 dB

Comparison of frequency response between "Educational" SCA receiver and SCA Modulation monitor.

FREQUENCY	SCA RECEIVER OUTPUT	MODULATION MONITOR
100 Hz	+3.0	0.0
700	+2.7	0.0
1,000	0.0	0.0
2,000	-3.0	-0.1
2,400	-4.0	-0.3
2,600	-5.0	-0.4
2,900	-6.0	-0.7
3,100	-7.0	-0.9
3,300	-8.0	-1.1
3,500	-9.0	-1.2
3,700	-10.0	-1.3
3,900	-11.0	-1.4
4,100	-12.0	-1.4
4,400	-13.0	-1.5
4,600	-14.0	-1.5
5,000	-15.0	-1.9
5,500	-----	-2.5
6,000	-----	-11.9

NEWARK PUBLIC RADIO, INC.

BROAD STREET

NEWARK, NEW JERSEY 07102

(201) 622-6563

MEMORANDUM

TO: Pat A. Conner

FROM: Bob Ottenhoff

SUBJECT: Additional Field Tests of SCA

DATE: June 23, 1977

For the last three weeks of the project we broadcast different programs on the main channel and SCA channel between the hours of 1 and 3 p.m. On May 26, 27, 30, and 31, we checked the SCA channel for cross-talk and signal strength problems in the following schools:

Mount Vernon - no cross-talk problems; some static.
Maple Avenue Annex - no cross-talk problems; some signal interference due to major hospital complex immediately across the street.
Clinton Avenue - no cross-talk or signal strength problems.
Ann Street - no cross-talk or signal strength problems.
Avon Avenue - "
South Street - "
Ridge Street - "
Elliot Street - no cross-talk problems; some static.

It should be noted that the schools listed above were located at the four extremities of the Newark school system, and that Mt. Vernon, Maple Avenue, Ann Street and Ridge Street were the four schools used in our earlier field tests with Gale Gilbreath.

NEWARK PUBLIC RADIO, INC.

109 BROAD STREET
NEWARK, NEW JERSEY 07102
(201) 622-6563

MEMORANDUM

TO: Pat Connor
FROM: Bob Ottenhoff
RE: Equipment Purchased for Audio Instruction Project
DATE: June 23, 1977

The three main factors that entered into our decision for purchasing equipment were: (1) durability and dependability; (2) sound quality; and (3) price. The equipment we eventually purchased was reviewed and tested and recommendations were made by Gale Gilbreath of G.A. Gilbreath Associates. We felt durability and dependability were very important since we knew that the equipment would be taking a rough beating and constant use on the part of the school system. We didn't want equipment that was delicate or hard to repair or that needed a lot of attention. We were also looking for equipment that was easy to use. As far as sound quality is concerned, we wanted to make sure that our cassette machines gave a good sound quality throughout the classroom. This became a factor in pricing machines. There were many machines on the market that were in the low price range of \$50-100, but in many instances they were not able to give the volume and the sound quality that we thought teachers needed in the classroom for audio instruction. The third factor of course was price. We sent out bids for the equipment in early January, to approximately ten vendors.

What follows is a short description of each piece of equipment we purchased, its price, and the reasons we purchased it:

1. Cassette Duplicator and Cassette Slave.

Our main concern in this project was to find a duplicator and slave that could be used for cassettes. We explored initially the possibility of finding a machine that could transfer tapes from reel to reel to cassette at high speed, but because of its cost in the \$5,000 range, we decided not to purchase it. We received two bids for the cassette duplicator and slave. One from Inphonics and the other from Wollensak. Because of the great difference in price, we purchased the Wollensak duplicator and slave at a total cost of \$2,048. The Inphonics arrangement would have cost approximately \$1,500 extra.

2. Cassettes *recorders*

Because of the reasons mentioned above, namely durability and dependability, ease of handling, sound quality and cost, we had narrowed our selection process down considerably by the time we went out to bid. We eventually purchased fifteen Wollensak Model #2520 at the cost of \$191.00 each, and purchased three Wollensak Model #2620 at a cost of \$134.00 each. Both of these machines turned out to be very dependable and very, very good. Based upon our experience this semester, we think the #2620 is a very good machine for classroom use.

3. Cassette (Bulk) Cases and Labels.

Because of our concern for good sound quality, we again specified in our bid specifications a high quality Scotch SCB C60 cassette. We were able to purchase the cassettes, cases and labels for a total of \$.82 each. We purchased a total of 1,000 for this project initially, and made an additional purchase of 50 at a later date.

4. Modulation monitor, SCA monitor, Limiter

Most of our competition for prices came from our limiter, the modulation monitor and SCA monitor. We received a total of three bids for the modulation and SCA monitors. We paid a total of \$3,473. for two TFT SCA monitors, a TFT FM modulation monitor, and a UREI Limiter 1176.

5. SCA Generator.

Because of compatibility reasons, we purchased a Gates SCA generator, at a cost of \$735.00.

6. SCA Receivers.

For this project we purchased Johnson SCA receivers. We did so almost totally because of the lower bid we received from Johnson over the McMartin receiver. We purchased the Johnson receivers (75 of them) at a price of \$65.50 per receiver.

After working with the equipment during this semester, my only comment is that the Wollensak tape recorders turned out to be very, very good items,

We intend to use them next semester in conjunction with our audio visual department and probably disseminate them through the librarians in the schools. Although it is a rather expensive item at \$134. each, we were very satisfied with them. It would seem however, that either purchasing these items at bulk, or purchasing a lower priced item would not have an adverse effect on the sound quality or the utilization of the cassettes.